Bridgestone Americas, Inc.
535 Marriott Drive
Nashville, TN 37214

Environmental Section,
Law Department

Jane M. Johnson
Manager of Remediation
Phone: 615-937-1856
johnsonjane@bfusa.com

April 8, 2011

Michael A. Jacobi
Office of Remediation (3LC20)
U.S. Environmental Protection Agency, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: **Final Remedy – Corrective Measures Completion Report**
Former Allied Signal Fibers Plant
Hopewell, Virginia
USEPA ID# VAD003112588

Dear Mr. Jacobi:

Attached please find two copies of the Final Remedy – Corrective Measures Completion Report for the above referenced site.

Please contact me if you have any questions related to this matter or the Report. We appreciate your assistance in completing the Final Remedy for this site.

Sincerely,

Jane M. Johnson / NDK

Jane M. Johnson

cc: Steve Jones, Greenberg Traurig
James A. Thornhill, McGuireWoods LLP
Earl Scott/Norm Kennel, Premier Environmental Services, Inc.

Corrective Measures Completion Report

Former Firestone Fibers and Textiles Plant
Hopewell, Virginia

Premier Project No. 298007

Prepared for:

Bridgestone Americas Tire Operations, LLC
535 Mariott Drive
Nashville, TN 37214

Prepared by:

Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Suite 101
Memphis, TN 38125

April 8, 2011

Certification Page

Corrective Measures Completion Report

Former Firestone Fibers and Textiles Plant
Hopewell, Virginia

Premier Environmental Services, Inc.

Premier Environmental Services, Inc. (Premier) is submitting this Comprehensive *Corrective Measures Completion Report* for the former Firestone Fibers and Textiles Plant in Hopewell, Virginia. This report was prepared by or performed under the direction of the environmental professionals listed below. If you have any questions or comments concerning the report, please contact the individuals listed below.

Joe Ricker, P.E.
Senior Engineer
Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Memphis, TN 38125

Norman D. Kennel, P.G.
Senior Project Manager
Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Memphis, TN 38125

Bridgestone Americas Tire Operations, LLC

I certify that the information contained in this Report is true, accurate, and complete.

I certify under penalty of law that this report and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____

Name: Jane M. Johnson

Title: Manager of Remediation

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Attachments

1 Introduction and Background

This Corrective Measures Completion Report (CMCR) was prepared by Premier Environmental Services, Inc. (Premier) for Bridgestone Americas Tire Operations, LLC (BATO) (formerly Bridgestone Americas North American Tire, LLC) to document the Corrective Measures completed for the former Firestone Fibers and Textiles (a.k.a. former Allied Signal Fibers Plant), an approximately 37-acre parcel of land located at 105 Winston Churchill Drive in Hopewell, Virginia (Site).

On February 22, 2006, the United States Environmental Protection Agency (USEPA) issued a Notice of Intent to issue a Final Remedy Determination for the Site as "Corrective Action Complete with Controls". On July 1, 2006, the USEPA issued its Final Decision and Response to Comments (FDRTC) for the Facility. The FDRTC contained the following Corrective Measures for the site:

- Groundwater monitoring "Groundwater Monitoring"; and
- Land and groundwater use restrictions "Institutional Controls".

On December 16, 2008 BATO and the USEPA entered into a Facility Lead, Corrective Measures Implementation Agreement (FLA), effective December 16, 2008, for the former Allied Signal Fibers Plant. On December 16, 2008, BATO submitted a Letter of Commitment to USEPA which outlined the Sections of the FLA that BATO intended to comply with as the Owner/Operator, as well as those for which the current property owner would be responsible (i.e. land and groundwater use restrictions).

2 Corrective Measures Implementation

The "Institutional Controls" portion of the Final Remedy was satisfied in 2007 by Honeywell International Inc. (the land owner) through the filing and recordation of a "Declaration of Covenants and Restrictions and Deed Notice" (***Attachment A***).

During the development of the FLA, BATO developed and submitted a Corrective Measures Implementation (Groundwater Monitored Natural Attenuation) Work Plan (CMI Work Plan), dated August 18, 2008 to USEPA for the "Groundwater Monitoring" portion of the Final Remedy.

The CMI Work Plan consisted of the collection and analysis of groundwater samples from select Site monitoring wells to monitor the constituent plume and natural attenuation processes over a period of two years. Samples were to be collected during a baseline sampling event and annually for two years thereafter. In accordance with the CMI Work Plan, a Comprehensive Natural Attenuation Evaluation Report (CNAER) was required to be prepared at the conclusion of the third monitoring period.

On August 19, 2008, USEPA approved the CMI Work Plan. The CMI Work Plan was implemented in October, 2008 when the baseline groundwater monitoring event was conducted. In accordance with the CMI Work Plan, two subsequent groundwater monitoring events were conducted, the first in November 2009 and the second in November 2010, and upon completion of the third round of sampling, the CNAER and this CMCR were prepared.

FLA Section II - "Work to be Performed" included the following tasks:

- Task I – Develop CMI Work Plan;
- Task II – Submit Corrective Measures Design;
- Task III – Implement Corrective Measures Construction; and
- Task IV – Submit Reports

In a letter to USEPA dated February 5, 2009, BATO requested confirmation that the Site work performed to date by BATO met the requirements of Tasks I, II and III of Section II of the FLA. On February 5, 2009 USEPA confirmed that the Site work satisfied such requirements, and indicated that BATO would be required to complete progress reports in

accordance with Section II, Task IV of the FLA. These progress reports have been completed in accordance with the requirements of the FLA.

Attachment B contains the CNAER for the Site. The data presented and evaluated in the CNAER demonstrate that natural attenuation is occurring at the Site and no further monitoring is warranted. With the completion of the CNAER, the "Groundwater Monitoring" portion of the Final Remedy has been satisfied. On this basis, as documented in this report, the Final Remedy has been completed and no further action should be required at the Site.

3 Conclusions and Recommendations

This Corrective Measures Completion Report documents the completion of the Corrective Measures requirements contained in the FLA for the former Allied Signal Fibers Plant located at 105 Winston Churchill Drive in Hopewell, Virginia.

With the filing of the "Institutional Controls" and the completion of "Groundwater Monitoring" the Corrective Measures are complete for the Site, and BATO recommends that no further Action is required.

Attachment A

Declaration of Covenants and Restrictions and Deed Notice

This instrument was prepared by:

Hunton & Williams LLP
Riverfront Plaza, East Tower
951 East Byrd Street
Richmond, VA 23219
Attention: Daniel M. Campbell, Esquire

Tax Parcel No.: 048-0176 and 048-0177

DECLARATION OF COVENANTS AND RESTRICTIONS AND DEED NOTICE

This Declaration of Covenants and Restrictions and Deed Notice (this "DCR") is made as of October 30, 2007, by Honeywell International Inc. ("Honeywell"), together with its successors and assigns.

THE PROPERTY. Honeywell is the owner in fee simple of certain real property located at 105 Winston Churchill Drive; designated as Tax Parcel Numbers 048-0176 and 048-0177, on the tax map of Hopewell, Prince George County, Virginia (the "Property"). The United States Environmental Protection Agency ("USEPA") has assigned the Property EPA ID No. VAD 003112588, and refers to the Property as the "former Allied Signal Fibers Plant." The Property is more particularly described in Exhibit A, which is attached hereto and made a part hereof.

ENVIRONMENTAL CONDITIONS. The Property is subject to the Corrective Action Program under the Resource Conservation and Recovery Act, as amended by the Solid Waste Disposal Act, 42 U.S.C. §§ 6901 to 6992k ("RCRA"). Environmental assessments conducted at the Property by and/or on behalf of Honeywell and others in the 1990s and 2000s detected elevated concentrations of, *inter alia*, volatile organic compounds in groundwater at the Property. Based upon the analytical data collected during such environmental assessments, USEPA issued a "Statement of Basis" for the Property, dated February 2006, in which it proposed designation of the Property as "Corrective Action Complete with Controls."

AUTHORITY. USEPA, under the authority of RCRA, selected a Final Remedy for the Property, set forth in its Final Decision and Response to Comments ("FDRTC") for the Property, dated July 19, 2006. The FDRTC references the Statement of Basis, and consists of continued monitoring of groundwater beneath the Property and the restriction of groundwater use at the Property by imposition of activity and use limitations ("Institutional Controls"), as set forth herein.

CONSIDERATION. In accordance with USEPA's approval of the FDRTC for the Property, and in consideration of the terms and conditions of that approval, Honeywell has agreed to subject the Property to Institutional Controls that impose restrictions upon the use of the Property and restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the Property (the entity or entities owning, leasing or otherwise

Return To: LandAmerica
600 E. Main St., STE 1400
Richmond, VA 23219
04-022202-PG

operating the Property shall be, collectively and individually, the "Owner/Operator" during the time of their ownership, leasehold or operation) regarding the Institutional Controls and monitoring, maintenance, and other requirements set forth in the FDRTC.

INSTITUTIONAL CONTROLS. The Owner/Operator has agreed to restrict the use of the Property as follows:

Any use of the Property, or activity thereon, that would interfere with or adversely affect the integrity, effectiveness or permanence of the Final Remedy is prohibited except in compliance with this DCR, including, but not limited to, the installation of production or other wells on the Property (except wells for the purpose of environmental sampling and testing) and the initiation or conduct of construction or other activities that would adversely affect groundwater monitoring wells on the Property.

If the Owner/Operator proposes to conduct any activity on the Property which reasonably may interfere with or adversely affect the integrity, effectiveness or permanence of the Final Remedy, the Owner/Operator agrees to submit for USEPA approval at least fifteen (15) business days prior to proceeding with any such activities, a description of such activities in sufficient detail to permit USEPA to assess the potential impact of those activities on the FDRTC. Owner/Operator shall obtain USEPA approval before proceeding with such activities.

The Owner/Operator agrees that no portion of the Property shall be used or occupied, either temporarily or permanently, for any residential use of any kind or nature (residential use shall be defined broadly to include, without limitation, any use of the Property by individuals or families for purposes of personal living, dwelling, or overnight accommodations, whether such uses are in single family residences, apartments, duplexes, or other multiple residential dwellings, trailers, trailer parks, camping sites, motels, hotels, or any other dwelling use of any kind), or for use as schools, daycare centers, elder care facilities, hospitals or similar uses, and no groundwater shall be extracted from underneath the property for human consumption, irrigation, or other purposes that might bring it into contact with humans or ecological receptors.

For the purpose of this DCR, USEPA shall have the right to enter all or any portion of the Property at all reasonable times to observe and enforce implementation of the Institutional Controls and this DCR.

RUN WITH THE LAND. The terms, covenants, conditions and restrictions contained herein are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of and enforceable by the parties hereto and their respective successors and assigns. In the event of any conveyance, transfer or assignment of any interest in the Property, in whole or in part, including, but not limited to, fee interests, leasehold interests, easements, land use interests and licenses (but not including mortgage interests) (any of the foregoing shall be a "Transfer of Interest"), the Owner/Operator agrees to ensure that the recipient of the conveyance, transfer or assignment is bound by the Institutional Controls set forth herein (including, without limitation, this paragraph) provided, that the grantee of only a portion of the Owner/Operator's interest in the Property need be bound only to the extent of Institutional Controls applicable to that portion.

This DCR shall be effective and binding upon the Owner/Operator, and its successors and assigns, as of the date first set forth above.

HONEYWELL INTERNATIONAL INC., a Delaware corporation

By: _____
Name: Philip Hammel
Title: Development Director and Authorized Signatory

State of New Jersey

City/County of Passaic, to-wit:

The foregoing instrument was acknowledged before me in the aforesaid jurisdiction this 24th day of October, 2007, by Philip Hammel, as Development Director and Authorized Signatory of Honeywell International Inc., a Delaware corporation, on behalf of the corporation.

My commission expires: 10/27/10

_____
Notary Public

[Affix Notary Seal]

CHERYL L. TOLES
State of New Jersey
County of Passaic
Expiration Date: 10/27/2010
ID # 2336504

Attachment B

Comprehensive Natural Attenuation Evaluation Report

Comprehensive Natural Attenuation Evaluation Report

Former Firestone Fibers and Textiles Plant
Hopewell, Virginia

Premier Environmental Project No. 298007

Prepared for:

Bridgestone Americas Tire Operations, LLC
535 Mariott Drive
Nashville, TN 37214

Prepared by:

Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Suite 101
Memphis, TN 38125

March 11, 2011

Comprehensive Natural Attenuation Evaluation Report

Former Firestone Fibers and Textiles Plant
Hopewell, Virginia

Premier Environmental Project No. 298007

March 11, 2011

Premier Environmental Services, Inc. (Premier) is submitting this Comprehensive *Natural Attenuation Evaluation Report* for the former Firestone Fibers and Textiles Plant in Hopewell, Virginia. This report was prepared by or performed under the direction of the environmental professionals listed below. If you have any questions or comments concerning the report, please contact the individuals listed below.

Joe Ricker, P.E.
Senior Engineer
Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Memphis, TN 38125

Norman D. Kennel, P.G.
Senior Project Manager
Premier Environmental Services, Inc.
8700 Trail Lake Drive West
Memphis, TN 38125

Table of Contents

List of Tables, Figures and Attachments

Tables

Figures

Attachments

Tables, figures and attachments are included at the end of the main text.

1 Introduction and Background

This report was prepared to provide the results of the evaluation of groundwater data and natural attenuation assessment for the former Firestone Fibers and Textiles facility in Hopewell, Virginia (Site). The location of the Site is shown in ***Figure 1***. A Site detail map is shown in ***Figure 2***. The natural attenuation assessment was described in a letter from Bridgestone Americas Tire Operations, LLC (BATO) to USEPA dated February 5, 2009. Prior to the submittal of the aforementioned letter, BATO developed and submitted a Corrective Measures Implementation (CMI) Work Plan (Groundwater Monitored Natural Attenuation Plan, dated August 18, 2008) to USEPA. On August 19, 2008, USEPA approved the CMI Work Plan. The CMI Work Plan was implemented in October, 2008 when the baseline groundwater monitoring event was conducted. As outlined in the CMI Work Plan, two subsequent groundwater monitoring events were conducted in November 2009 and November 2010.

The purpose of this evaluation was to verify that natural attenuation processes continue to effectively treat and control the migration of constituents of concern (COCs) from the Site. Site details are provided in previous project reports, which are incorporated herein by reference. Based on previous site investigation reports, the primary COCs identified at the Site include 1,1,2,2-tetrachloroethane (1,1,2,2-PCA), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), 1,1-dichloroethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE). The groundwater data evaluation included in this report is likewise focused on these compounds. Section 2 of this report discusses general natural attenuation processes. Section 3 of this report provides a summary of available Site data, including an evaluation of natural attenuation processes occurring at the Site. Section 4 provides our conclusions regarding of the natural attenuation remedy, as well as recommendations for the Site.

1.1 Site Setting

The property is located along the western margin of the Coastal Plain Physiographic Province in Hopewell, Virginia (south of Richmond). The city of Hopewell lies at the convergence of the Appomatox and James Rivers (***Figure 1***).

1.1.1 Regional Hydrogeology

The western margin of the Coastal Plain is characterized by generally well-drained soils with gently rolling to level terrain and broad stream valleys. The James and Appomatox

Rivers have incised the eastward dipping Coastal Plain sediments and created a broad lowland consisting of terraces, floodplains, and wetlands. Thick sequences of porous and permeable strata form regional aquifers and impermeable strata form confining units between the aquifers. The regional aquifers consist of, in descending order, the Columbia, Yorktown-Eastover, Chickahominy-Piney Point, Aquia, Upper Potomac-Brightseat, Middle Potomac, Lower Potomac. Groundwater flow in the upper, surficial aquifers (Columbia and Yorktown-Eastover) is generally towards the James River (USGS, 1997). The Columbia aquifer is observed in the sediments of lower elevation terraces (where the property resides), whereas the Yorktown-Eastover aquifer is observed in the sediments of higher elevation terraces (USGS, 1997). Regionally, the hydraulic conductivity of the Columbia aquifer has been reported to range from 5.6 to 76 feet/day with a median of 46 feet/day (USGS, 1997).

1.1.2 Local Hydrogeology

The Site is at an elevation of approximately 50 feet mean sea level (1929 NGVD) and the surface topography is generally flat with vertical relief less than 20 feet. Previous hydrogeologic investigations at the Site were performed within the upper 40 feet of subsurface sediments within the lower elevation terrace adjacent to the James River (i.e., the Columbia aquifer).

The geology is characterized by predominantly silty clays to coarse sands. The boring logs generally indicate coarser grained sediments to the west and north and finer grained sediments to the east and south with intermittent lenses of lean clay and coarse sand beneath the subject property.

Groundwater is encountered between 25 and 35 feet below ground surface (bgs) and flows generally from northwest to southeast across the subject property towards the James River which is consistent with the regional groundwater flow direction. Discontinuous, perched groundwater zones have been observed at the subject property during previous investigations (HP-P-02 and EXMW-01) investigations due to layers of silty clay, which inhibit groundwater infiltration to the underlying Columbia aquifer (Froeling & Robertson, 1991a and O'Brien & Gere, 1995).

2 Natural Attenuation Background

Natural attenuation is a widely known and understood process that results in the reduction in the mass and concentration of organic compounds as a result of natural physical, chemical and biological processes. In 1997, USEPA issued guidance entitled *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites* (OSWER Directive 9200.4-17). This guidance document provides the background, rationale and methodology for implementation of monitored natural attenuation as a viable technique for the control and ultimate remediation of organic compounds in soil and groundwater. Three lines of evidence are utilized to demonstrate the effectiveness of natural attenuation of chlorinated ethenes, including (USEPA 1998):

1. Historical groundwater and/or soil data that demonstrate a reduction in the mass and concentration of chlorinated ethenes over time at appropriate sample locations;
2. Hydrogeological and chemical data that indirectly demonstrate natural attenuation processes and can be used to estimate the rate of degradation; and
3. Data from field and microcosm studies that directly demonstrate the occurrence of natural attenuation.

The demonstrated presence of one or more of these lines of evidence indicates that natural attenuation is a viable mechanism for the control and ultimate remediation of chlorinated ethenes at the Site.

The line of evidence presented regarding the natural degradation processes in effect at the Site includes primarily historical chemical data obtained at the Site during various investigations. Based on the distribution of COCs at the Site, 1,1-DCA and 1,1-DCE detected in groundwater are likely produced from the attenuation of the parent compound 1,1,1-TCA. This parent compound is known to degrade by both hydrolysis and microbial activity (NRC, 2000; Montgomery, 1991). 1,1-DCE and 1,1-DCA are predominantly attenuated by microbial activity under anaerobic conditions to vinyl chloride and ultimately carbon dioxide, water, ethene, ethane, etc. (McClarty 1996). It is noted, however, that both 1,1-DCA and 1,1-DCE have been shown to biodegrade under aerobic conditions (USEPA 1998), although the rate is likely insignificant compared to anaerobic

biodegradation. The following section provides a demonstration of natural attenuation based on available historic Site data.

3 Natural Attenuation Demonstration

3.1 Plume Stability Analysis

The primary line of evidence to demonstrate the occurrence of natural attenuation at the Site is a demonstration that the COC plume is stable or decreasing. Understanding the stability of a contaminant plume is an important step in the remedial planning process for a site. For example, an increasing plume could potentially continue to migrate to human or environmental receptors that currently are not impacted, whereas a stable or decreasing plume may indicate a cessation or reduction in plume migration and/or impact. The size of a contaminant plume is influenced by a variety of physical, chemical, and biological processes. Groundwater contaminant plumes are typically limited in size due to a combination of these processes, as well as by other hydrologic and geologic features. When a plume has reached a point of dynamic equilibrium (i.e., steady state), the mass loading to the plume from a source is equal to the rate of the mass lost from the plume by physical, chemical, or biological processes. This analysis was conducted to gain an understanding of the overall stability of the COCs at the Site in terms of plume area, average concentration, mass, and center of mass.

3.1.1 Plume Stability Analysis Methodology

The plume stability analysis was conducted using procedures described in *A Practical Method to Evaluate Ground Water Contaminant Plume Stability* (Ricker, 2008). The Ricker Plume Stability Analysis compares relative changes in contaminant plume characteristics including area, average concentration, and mass. In order to demonstrate that a plume is stable, temporal changes in these calculated values should result in decreasing or stable trends. An increasing trend in any of these values may indicate that the plume is not stable and/or is expanding. In addition to temporal trend analysis of plume characteristics, a temporal trend in the plume center of plume mass is calculated.

Based on review of historical data at the Site, the following eight sampling events were included in the plume stability analysis: Oct-95; Jun-99; Aug-00; Oct-03; May-04; Oct-08; Nov-09; and Nov-10. It is noted that the Oct-95 and Jun-99 events did not include monitoring for HPMW-01, and HPMW-03, and ASMW-05A was not included until the Oct-03 sampling event. Further, ASMW-05 was only sampled through the Aug-00 event. For the sampling events where these wells were not sampled, assumed values based on actual data from the respective well were used. Monitoring wells where 100 percent of

the data presented were non-detect were always assumed to be non-detect, even for sampling events when no analytical data were reported.

It was initially planned to conduct the plume stability analysis for each of the five primary COCs presented above in Section 1. However, it was determined that there were insufficient detected results to complete the analysis for the parent compounds 1,1,2,2-PCA, 1,1,1-TCA, and TCE. For reference, the historical data for these COCs are posted on ***Figures 3 – 5***, respectively. The plume stability analysis for the 1,1-DCA and 1,1-DCE plumes are discussed below. Monitoring well data used in the plume stability analysis are summarized in ***Table 1***.

Constituent concentration isopleth maps were developed for 1,1-DCA and 1,1-DCE for each of the sampling dates presented above. The isopleth maps for both compounds were delineated to a concentration of 5.0 micrograms per liter (µg/l), which is the federal drinking water maximum contaminant level (MCL) for PCP.

The area of the plume for each COC for each sampling date was calculated using the mathematical features of the contouring software used to develop the isopleth maps (i.e., Surfer® by Golden Software, Inc.). Surfer® was also used for the computation of the average concentration of each plume. The plume area and average concentrations were then used to calculate the plume mass for the date of each sampling event. To calculate the plume mass, values for overall average aquifer thickness and porosity of 25 feet and 30 percent, respectively were used.

It is noted that the plume mass is not necessarily an indication of the actual total mass of the plume; rather it is a means to combine the variables of area and concentration into one meaningful indicator variable. Since the crux of the plume stability evaluation method is to observe relative changes between sampling events, applying constants to the mass calculation has no bearing on the meaningfulness of the output of the analysis (i.e., relative rate of change in plume mass). Further, the plume mass does not represent the entire mass in the subsurface. For example, the actual plume mass is dependent upon the spacing and location of monitoring wells, and this methodology does not account for the mass of separate phase material that may be present in the subsurface. Because the plume mass value is not necessarily an indication of actual plume mass, the term "mass indicator" is used for this characteristic.

In addition to calculating plume characteristic values of area, average concentration, and mass indicator, the location of the plume center of mass was also calculated. Because the isopleth maps are based on underlying grid files, the centroid of the three-dimensional

grid file was easily calculated using the X and Y coordinates of the grid nodes and the corresponding Z value (i.e., concentration) at each grid node.

3.1.2 Plume Stability Analysis Results

1,1-DCA and 1,1-DCE concentration isopleth maps for the sampling dates stated above are included in ***Attachment 1***. The plume stability characteristics of area, average concentration, mass indicator, and center of plume mass, are shown on each isopleth map. ***Table 2*** presents the tabulated values for plume area, average concentration and mass indicator for each sampling date.

To evaluate the stability of the each plume, statistical trends of the plume characteristics were evaluated. The area, average concentration, and mass indicator for each sampling event were initially plotted to observe changes in each parameter from event to event. The plume stability analysis results for the 1,1-DCA and 1,1-DCE plumes are shown in ***Figures 6*** and *7*, respectively. Based on observation of ***Figures 6*** and *7*, the trends in the plume stability characteristics for each plume appear to be stable.

In order to determine if any underlying trends exist in the plume characteristic values, a statistical analysis was conducted. The plume stability characteristics were statistically evaluated using both linear regression techniques and the Mann-Kendall Test. Linear regression is a parametric statistical procedure that is typically used for analyzing trends in data over time. The Mann-Kendall Test is a non-parametric statistical test; therefore, it is not dependent upon the magnitude of the data, assumptions of distribution, or regularly spaced sampling events.

The Mann-Kendall Test is used to assess whether a data set exhibits an increasing or decreasing trend, at a predetermined level of significance, α. The test requires the calculation of a statistic "S", which is the difference between the number of paired differences that are positive, minus the number that are negative. If S is a large positive value, then there is evidence of an increasing trend in the data. If S is a large negative value, then there is evidence of a decreasing trend in the data. The null hypothesis, H_0, for the Mann-Kendall Test is that there is no temporal trend in the data. The alternative hypothesis, H_A, is that of either an upward trend or a downward trend.

If the null hypothesis is not rejected (i.e., no trend could be established statistically), it is expected that the plume is stable. However, a stable plume may not in fact be evident because the statistical test does not take into account magnitude or variation in the data. For example, a data set can exhibit a large amount of scatter, yet the test would conclude that the plume is stable. A methodology to counter the problem of scatter in the data

involves comparing the calculated S statistic, a calculated confidence factor (1-α), and the coefficient of variation for the data set. The S statistic indicates the direction of the trend, the confidence factor shows how strong the trend is, and the coefficient of variation indicates the degree of scatter in the data.

For the plume stability analysis, significant trends are established when the calculated confidence factor is greater than 90%. If the confidence factor is less than 90%, the plume is considered stable if the coefficient of variation is small (i.e., <1). If the coefficient of variation is high (i.e., >1), then a conclusion of indeterminate trend is made.

When evaluating trends using linear regression, trends may be obscured by scatter in the data. This condition is typically indicated by a low correlation coefficient (R^2) value. Even with low R^2 values (i.e., high degree of scatter), a confidence interval can still be constructed on the slope of the regression line through the log transformed values. As described in AFCEE (2006), assuming the sign (i.e., positive or negative) of the estimated log-slope is correct, a level of confidence that the slope is not zero can be easily determined. The overall trend in the data may thus still be determined, where low levels of confidence correspond to stable or indeterminate trends and higher levels of confidence (e.g., > 90%) indicate the stronger likelihood of a trend. For the plume stability analysis, significant trends are established when the calculated confidence factor is greater than 90%. If the confidence factor is less than 90%, the plume is considered stable if the coefficient of variation is small (i.e., <1). If the coefficient of variation is high (i.e., >1), then a conclusion of indeterminate trend is made.

Trend analyses for the 1,1-DCA and 1,1-DCE plume area, average concentration and mass are presented on ***Figures 6*** and *7*, respectively. As observed on ***Figures 6*** and *7*, the plume area, average concentration, and mass indicator for both compounds are stable.

Additionally, the migration of the plume center of mass was evaluated. The plume center of mass for each sampling event is shown on the respective figures in ***Attachment 1***. The historical plume center of mass locations for the 1,1-DCA and 1,1-DCE plumes are summarized on ***Figures 8*** and ***9***, respectively. The temporal trend in the plume center of mass location was also evaluated as part of the plume stability analysis. To conduct trend analyses in the plume center of mass, the distance from the calculated center of mass to an upgradient fixed datum was calculated. The fixed datum selected for the analysis was monitoring well HPMW-03. The PCP plume center of mass trend analyses are also shown on ***Figures 8*** and ***9***. As observed on ***Figure 8*** and ***9***, the plume center of mass trend analyses all resulted in increasing trends. However, the increasing trend in center

of mass is not due to an advancing plume; rather it is due to the fact that an upgradient well (i.e., HPMW-01) is decreasing in concentration and a downgradient well (i.e., ASMW-02) is not significantly changing in concentration. In this case, the center of mass is trending in an upgradient direction due to more rapid decreases in plume upgradient areas, as opposed to an upgradient trending center of mass due to an advancing plume.

Overall, it is concluded that the 1,1-DCA and 1,1-DCE plumes are stable, and will not likely migrate from the current respective extents.

3.2 1,4 Dioxane Evaluation

As part of the routine Site monitoring program, it was requested that BATO start monitoring for 1,4-dioxane starting with the 2008 sampling event. 1,4-Dioxane was thus sampled for in the three monitoring events conducted in Oct-08, Nov-09, and Nov-10. The 1,4-dioxane data are summarized in ***Table 3*** and plume series maps are presented in ***Attachment 2***. As observed in ***Attachment 2***, the 1,4-dioxane plume has not changed significantly over the period monitored, and is thus likewise considered to be stable.

3.3 Evaluation of Parent/Daughter Compound Relationships

Concentrations of daughter (degradation) compounds provide a direct indication that biodegradation of parent chlorinated compounds is occurring. As discussed above, 1,1-DCA and 1,1-DCE are likely produced from the attenuation of the parent compound 1,1,1-TCA.

Time trend charts for chlorinated ethane compounds were prepared to evaluate the distribution of parent and daughter compounds through time. The chlorinated ethane compounds included in this analysis included 1,1,2,2-PCA; 1,1,1-TCA; 1,1,2-TCA; 1,1-DCA; 1,2-DCA; 1,1-DCE; and chloroethane. Time series charts were prepared for three monitoring wells: HPMW-01, ASMW-01, and ASMW-02. The charts are included in ***Figures 10***, ***11***, and ***12***, respectively. Also included in each figure is a chart showing the respective molar fraction of each chlorinated ethane compound. During the sequential degradation of the parent compound (e.g., 1,1,1-TCA) to its daughter compound(s) (e.g., 1,1-DCA and 1,1-DCE), the molar fraction of higher chlorinated compounds (1,1,2,2-PCA; 1,1,1-TCA; and 1,1,2-TCA) would be expected to decline as the molar fraction of lesser chlorinated daughter products (1,1-DCA and 1,1-DCE) would be expected to increase.

As observed in ***Figures 10***, ***11***, and ***12***, the total molar fraction of daughter compounds (1,1-DCA and 1,1-DCE) is greater than 90% for most sampling events, and in many cases the total molar fraction of daughter compounds is greater than 95%. This is a very strong indication that most of the original material released has degraded at the Site. This is also a good indication that the observed plume has been in place for a very long time and has reached a point of dynamic equilibrium (i.e., steady state). As demonstrated above, the remaining daughter compound plumes are stable, and we do not expect them to migrate from the current plume extents.

3.4 Evaluation of Geochemical Data

As part of the baseline natural attenuation evaluation period, certain monitored natural attenuation (MNA) data were collected to determine the extent to which biodegradation may be occurring at the Site. The MNA data collected during the Oct-08, Nov-09, and Nov-10 sampling events, are summarized in ***Table 4***. By observation of the data in ***Table 4***, it does not appear that biodegradation is an important attenuation mechanism at the Site. However, as discussed above, the presence of 1,1-DCA and 1,1-DCE at the Site is likely due to abiotic degradation of 1,1,1-TCA and 1,1,2,2-PCA. In this case, there would not be geochemical evidence of biodegradation, such as would be evident by the MNA data summarized in ***Table 4***. However, a better indication of abiotic degradation is the presence of a high molar fraction of daughter compounds, as shown above.

4 Conclusions and Recommendations

The data presented and evaluated in this report clearly demonstrate that natural attenuation via abiotic degradation is occurring at the Site. There are only relatively low levels of parent compounds detected in groundwater, and the two primary daughter compound plumes are stable. Based on these observations it is recommended that natural attenuation be implemented as a final Site remedy, and that further monitoring is not necessary based on the data. As part of the implementation of the natural attenuation remedy, all Site monitoring wells should be properly sealed and abandoned in accordance with USEPA and/or local requirements for well closure.

5 References

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Tables

Table 1
Summary of Data Used for Plume Stability Analysis
Former Allied Signal Fibers Plant
Hopewell, Virginia

	1,1-DCA								
Well	Feb-93	Oct-95	Jun-99	Aug-00	Oct-03	May-04	Oct-08	Nov-09	Nov-10
ASMW-01	140	143	160	190	72	57	159	126	92.3
ASMW-02	25	35.1	87	180	92	56	215	176	82.7
ASMW-03	1	ND	ND	ND	ND	ND	ND	ND	ND
ASMW-04		4	ND	1.6	1.4	1.4	3.7	3.8	3.5
ASMW-05		35.1	31	42	NS (42)	NS (42)	NS (42)	NS (42)	NS (42)
ASMW-05A		NS (3.3)	NS (3.3)	NS (3.3)	NS (3.3)	3.3	1.9	1.4	1.3
ASMW-06		ND	ND	ND	ND	ND	ND	ND	ND
ASMW-07		NS	NS	NS	NS	ND	0.7	0.8	0.5
HPGP-01		NS	NS	ND	NS	NS	NS	NS	NS
HPMW-01		NS (58)	NS (58)	58	60	50	47.1	32.9	17.8
HPMW-02		NS	NS	ND	ND	ND	2.9	2.1	3.2
HPMW-03		NS (6.5)	NS (6.5)	6.5	ND	ND	NS	NS	NS
HPMW-04		NS	NS	ND	ND	ND	ND	ND	ND
HPMW-05		NS	NS	NS	NS	NS	NS	NS	NS

Table 1
Summary of Data Used for Plume Stability Analysis
Former Allied Signal Fibers Plant
Hopewell, Virginia

	1,1-DCE								
Well	Feb-93	Oct-95	Jun-99	Aug-00	Oct-03	May-04	Oct-08	Nov-09	Nov-10
ASMW-01	100	86.7	180	210	72	57	96.4	71.1	53.6
ASMW-02	ND	64.3	65	150	66	48	191	160	65.8
ASMW-03	ND	ND	ND	ND	0.47	ND	0.6	0.3	0.3
ASMW-04		22.2	2.6	7.1	9.2	9.1	22.3	22.3	19.1
ASMW-05		64.3	54	90	NS(90)	NS(90)	NS(90)	NS(90)	NS(90)
ASMW-05A		NS(8.9)	NS(8.9)	NS(8.9)	NS(8.9)	8.9	3.5	2.3	2
ASMW-06		ND	ND	ND	ND	ND	ND	0.2	0.2
ASMW-07		NS	NS	NS	NS	ND	0.8	0.8	0.4
HPGP-01		NS	NS	ND	NS	NS	NS	NS	NS
HPMW-01		NS(35)	NS(35)	35	49	35	22	15.3	8.1
HPMW-02		NS(9)	NS(9)	9	7.9	7	23.4	19.4	14.8
HPMW-03		NS(2.2)	NS(2.2)	2.2	0.42	ND	NS	NS	NS
HPMW-04		NS(3.2)	NS(3.2)	3.2	3.6	3.5	2	1.1	0.6
HPMW-05		NS	NS	NS	NS	NS	NS	NS	NS

Table 2
Summary of Plume Stability Analysis Results
Former Allied Signal Fibers Plant
Hopewell, Virginia

Date	1,1-DCA			1,1-DCE		
	Area (Acres)	Average Conc. (µg/l)	Mass Indicator (lbs)	Area (Acres)	Average Conc. (µg/l)	Mass Indicator (lbs)
Oct-95	19.4	39.7	15.7	20.9	29.1	12.4
Jun-99	19.8	49.3	19.9	20.6	36.9	15.5
Aug-00	20.7	65.0	27.4	21.7	47.4	21.0
Oct-03	18.6	36.9	14.0	21.7	31.9	14.1
May-04	17.9	28.7	10.5	19.2	29.7	11.6
Oct-08	19.5	65.2	25.9	23.0	35.8	16.8
Nov-09	18.9	55.5	21.3	21.7	33.5	14.8
Nov-10	17.5	36.3	13.0	19.6	27.9	11.1

Table 3
Summary of 1,4-Dioxane Data
Former Allied Signal Fibers Plant
Hopewell, Virginia

Well	Oct-08	Nov-09	Nov-10
ASMW-01	108	94.3	87.7
ASMW-02	119	126	81.1
ASMW-03	137	117	83.8
ASMW-04	20	ND	ND
ASMW-05	NS	NS	NS
ASMW-05A	64.6	45	43
ASMW-06	ND	ND	ND
ASMW-07	ND	5.44	9.26
HPGP-01	NS	NS	NS
HPMW-01	28.1	18	12.4
HPMW-02	ND	ND	ND
HPMW-03	NS	NS	NS
HPMW-04	ND	ND	ND
HPMW-05	NS	NS	NS

Table 4
Summary of MNA Data
Former Allied Signal Fibers Plant
Hopewell, Virginia

		Oct-08																					
MNA Constituents	Units	ASMW-01		ASMW-02		ASMW-03		ASMW-04		ASMW-5A		ASMW-06		ASMW-07		HPMW-01		HPMW-02		HPMW-04	
Nitrate	mg/L	18		0.9		8.7		4.4		13.2		0.1	U	0.6		0.1	U	69		6.5	
Ferrous Iron	mg/L	0.12		0.41		0.35		0.11		0.44		0.27		0.62		0.74		0		0.24	
Sulfate	mg/L	1250	J	920	J	158	J	21	J	414	J	130	J	503	J	384	J	343	J	75.2	J
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloride	mg/L	32.7	J	63.4	J	42.3	J	825	J	43.8	J	76.6	J	40.9	J	69.7	J	85.2	J	15.9	J
Ammonia	mg/L	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Alkalinity	mg/L	106		19		5	U	83.6		5	U	125		33.2		89		33		38	
Total Organic Carbon (TC	mg/L	1.9		2.8		1	U	1.1		1.3		3.9		2.1		2		1.5		1	U
Dissolved Oxygen (DO)	mg/L	0.71		0.56		0.48		1		0.51		0.61		0.57		0.7		1.05		4.1	
Turbidity	NTU	>999		468		213		610		>999		45.1		>999		81.4		>999		>999	
pH	STU	6.21		4.81		4.31		5.91		4.52		5.9		5.19		5.78		5.58		5.64	
Specific Conductance	uS/cm	2722		1945		576		2864		1068		771		1350		1094		1574		325	
Oxidation Reduction Potential	mV	51.4		138.6		146.1		137		136.9		75		177		47.1		329.4		84.1	
Nitrite	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrate+Nitrite	mg/L	18		0.9		8.7		4.4		13.2		0.1	U	0.6		0.1	U	69		6.5	

Notes:
U - Not detected above the listed reporting limit
J - Estimated value
UJ - Estimated reporting limit
NA - Not analyzed
STU - Standard pH units
Results are validated

Table 4
Summary of MNA Data
Former Allied Signal Fibers Plant
Hopewell, Virginia

		Nov-09																			
MNA Constituents	Units	ASMW-01		ASMW-02		ASMW-03		ASMW-04		ASMW-5A		ASMW-06		ASMW-07		HPMW-01		HPMW-02		HPMW-04	
Nitrate	mg/L	1.5		1.1		7		4.3		12		0.1	U	0.7		0.1	U	77.6		9.2	
Ferrous Iron	mg/L	0.59		0.3		0.23		0.24		0.47		0.46		0.2		0.98		0.23		0.05	
Sulfate	mg/L	1230		841		153		21		352		140		424		307		262		57.3	
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloride	mg/L	28.7		62.1		38.7		815		38.8		73.3		31.1		57		96.8		16	
Ammonia	mg/L	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Alkalinity	mg/L	100		16.5		5	U	85		5	U	120		18.5		38.4		22		35.8	
Total Organic Carbon (TC	mg/L	1.7		3		1.1		1.4		1.3		4.3		2		1.7		1	U	2.6	
Dissolved Oxygen (DO)	mg/L	0		0		3.97		0		0		0		5.06		0		0		3.9	
Turbidity	NTU	0		181		42.4		491		316		50.7		174		0		276		0	
pH	STU	5.7		4.7		4.44		6.15		3.57		5.89		4.91		5.7		4.56		5.1	
Specific Conductance	uS/cm	982		1990		528		2750		1000		768		1210		982		1540		350	
Oxidation Reduction Potential	mV	128		199		383		235		390		84		28		128		577		180	
Nitrite	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrate+Nitrite	mg/L	1.5		1.1		7		4.3		12		0.1	U	0.7		0.1	U	77.6		9.2	

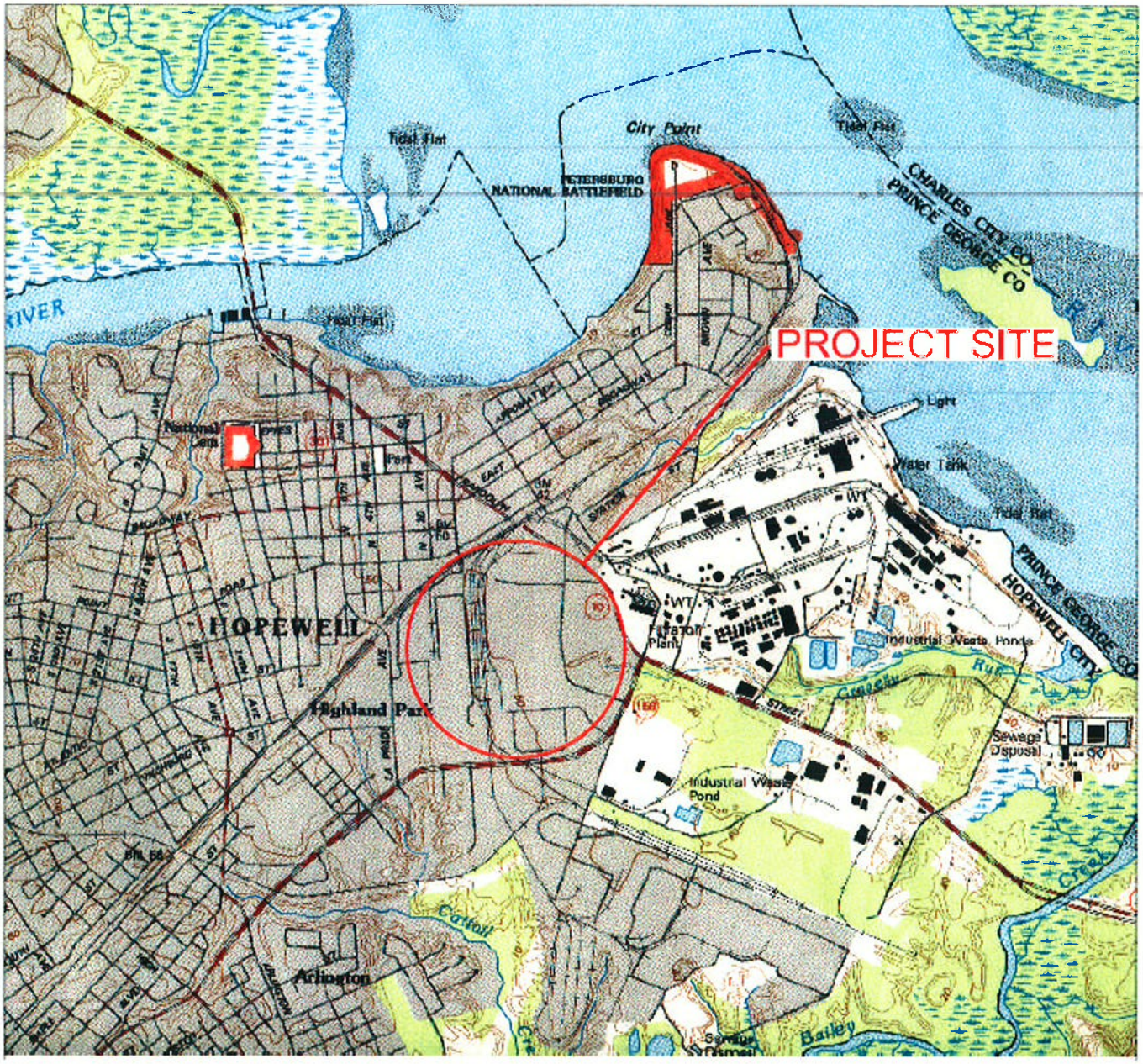
Notes:
U - Not detected above the listed reporting limit
J - Estimated value
UJ - Estimated reporting limit
NA - Not analyzed
STU - Standard pH units
Results are validated

Table 4
Summary of MNA Data
Former Allied Signal Fibers Plant
Hopewell, Virginia

		Nov-10																			
MNA Constituents	Units	ASMW-01		ASMW-02		ASMW-03		ASMW-04		ASMW-5A		ASMW-06		ASMW-07		HPMW-01		HPMW-02		HPMW-04	
Nitrate	mg/L	1.6		0.6		7.7		4.5		12.3		0.1	U	0.7		0.1	U	61		10.1	
Ferrous Iron	mg/L	0.07		0.67		0.49		0.18		0		0.64		0		1.6		0.3		0.32	
Sulfate	mg/L	1340		1590		157		22.7		436		108		612		302		821		66.4	
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloride	mg/L	29.4		69.8		35.1		899		40.5		72.8		36		46.1		117		16.9	
Ammonia	mg/L	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Alkalinity	mg/L	86.6		6		5	U	83.8		5	U	121		5	U	49.6		5	U	34.4	
Total Organic Carbon (TC	mg/L	1.9		2.6		1.2		1	U	1.6		4.4		2.4		1.9		3.1		1	U
Dissolved Oxygen (DO)	mg/L	2.61		2.48		3.67		2.06		2.71		2.11		2.98		2.06		1.32		8.73	
Turbidity	NTU	431		612		457		727		2000		99.1		951		102		2000		358	
pH	STU	5.98		4.93		4.23		5.8		4.34		5.8		4.89		5.56		4.34		5.63	
Specific Conductance	uS/cm	2460		1700		505		2730		1030		700		1187		781		2000		338	
Oxidation Reduction Potential	mV	144		163		270		114		205		63		168		114		549		104	
Nitrite	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrate+Nitrite	mg/L	1.6		0.6		7.7		4.5		12.3		0.1	U	0.7		0.1	U	61		10.1	

Notes:
U - Not detected above the listed reporting limit
J - Estimated value
UJ - Estimated reporting limit
NA - Not analyzed
STU - Standard pH units
Results are validated

Figures



USGS
HOPEWELL QUADRANGLE
VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
37077-C3-TF-024

1994
DMA 5558 IV SE-SERIES V834

Figure 1- Site Location Map

BRIDGESTONE

PREMIER ENVIRONMENTAL SERVICES, INC

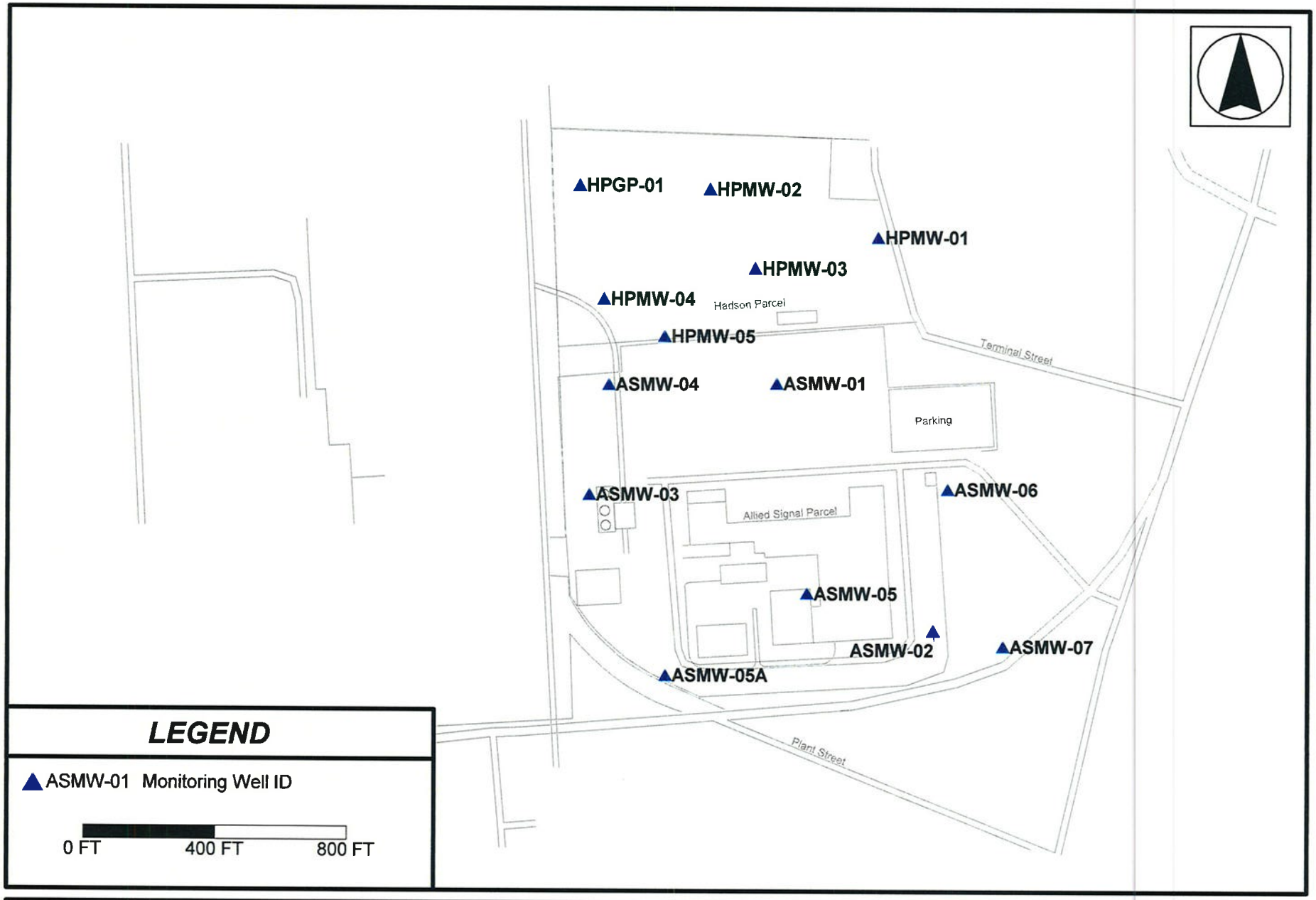


Figure 2. Site Detail Map

BRIDGESTONE

PREMIER ENVIRONMENTAL SERVICES, INC

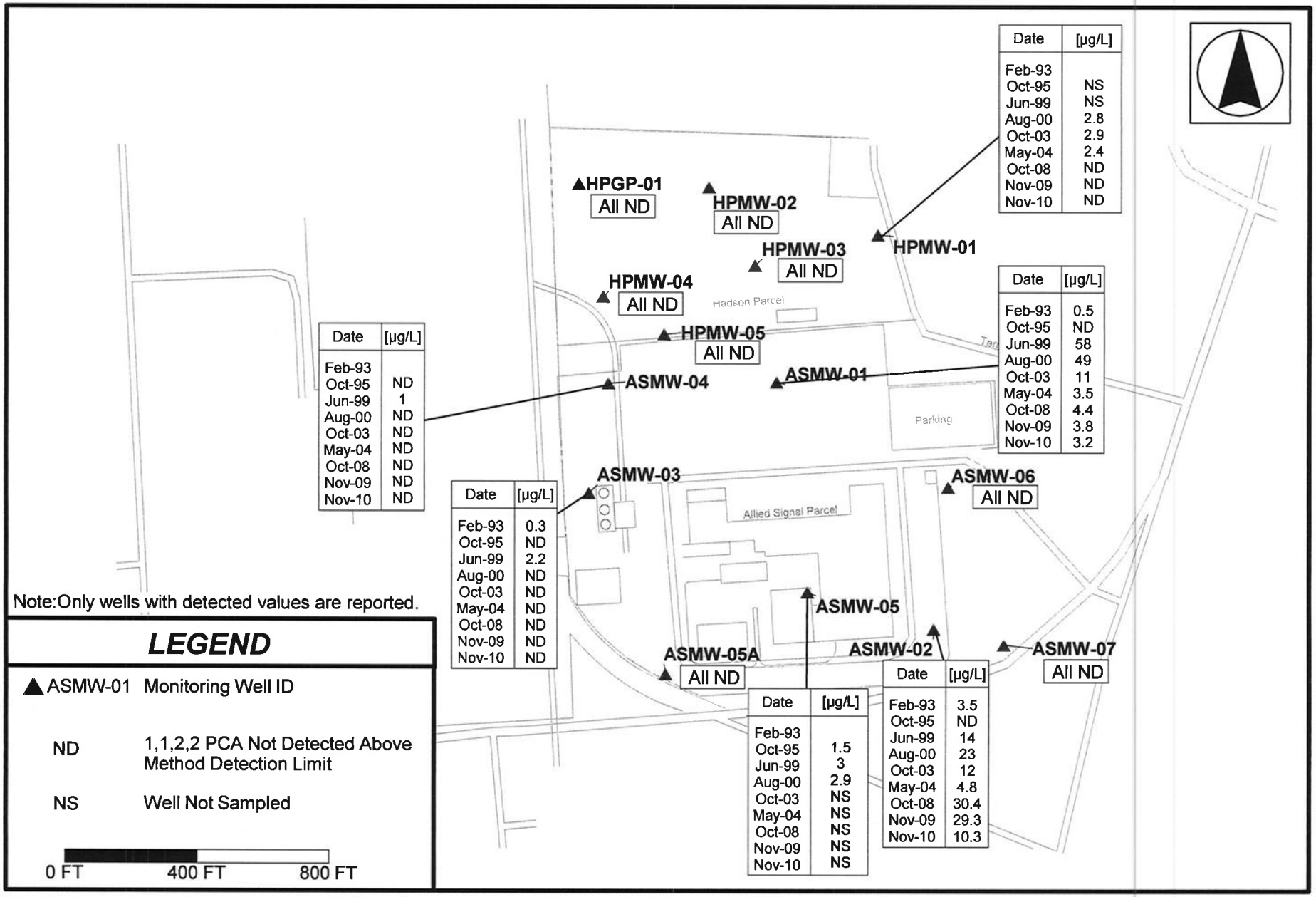


Figure 3 - Historical Data for 1,1,2,2 Tetrachloroethane

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC

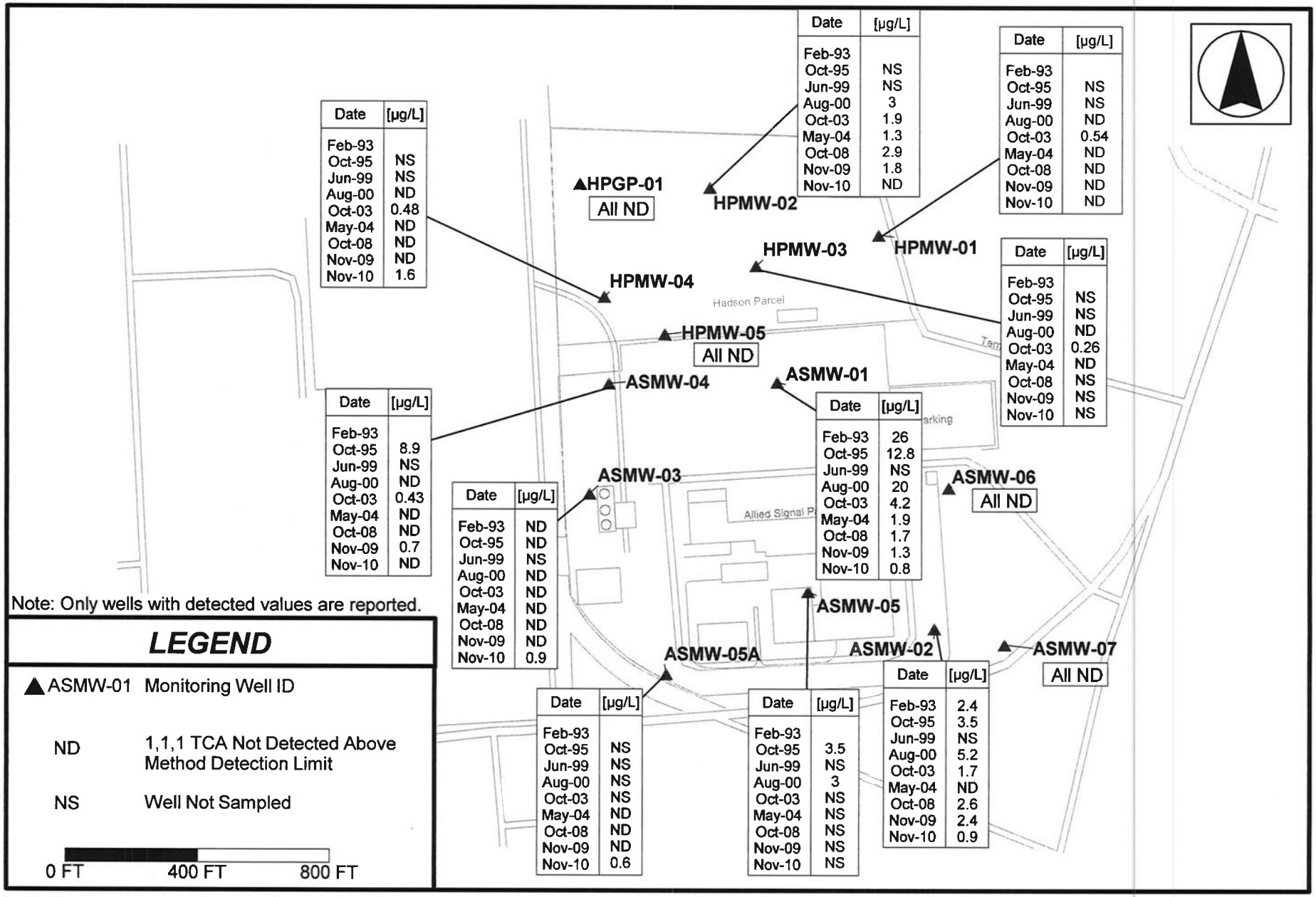


Figure 4 - Historical Data for 1,1,1 Trichloroethane

BRIDGESTONE

PREMIER ENVIRONMENTAL SERVICES, INC

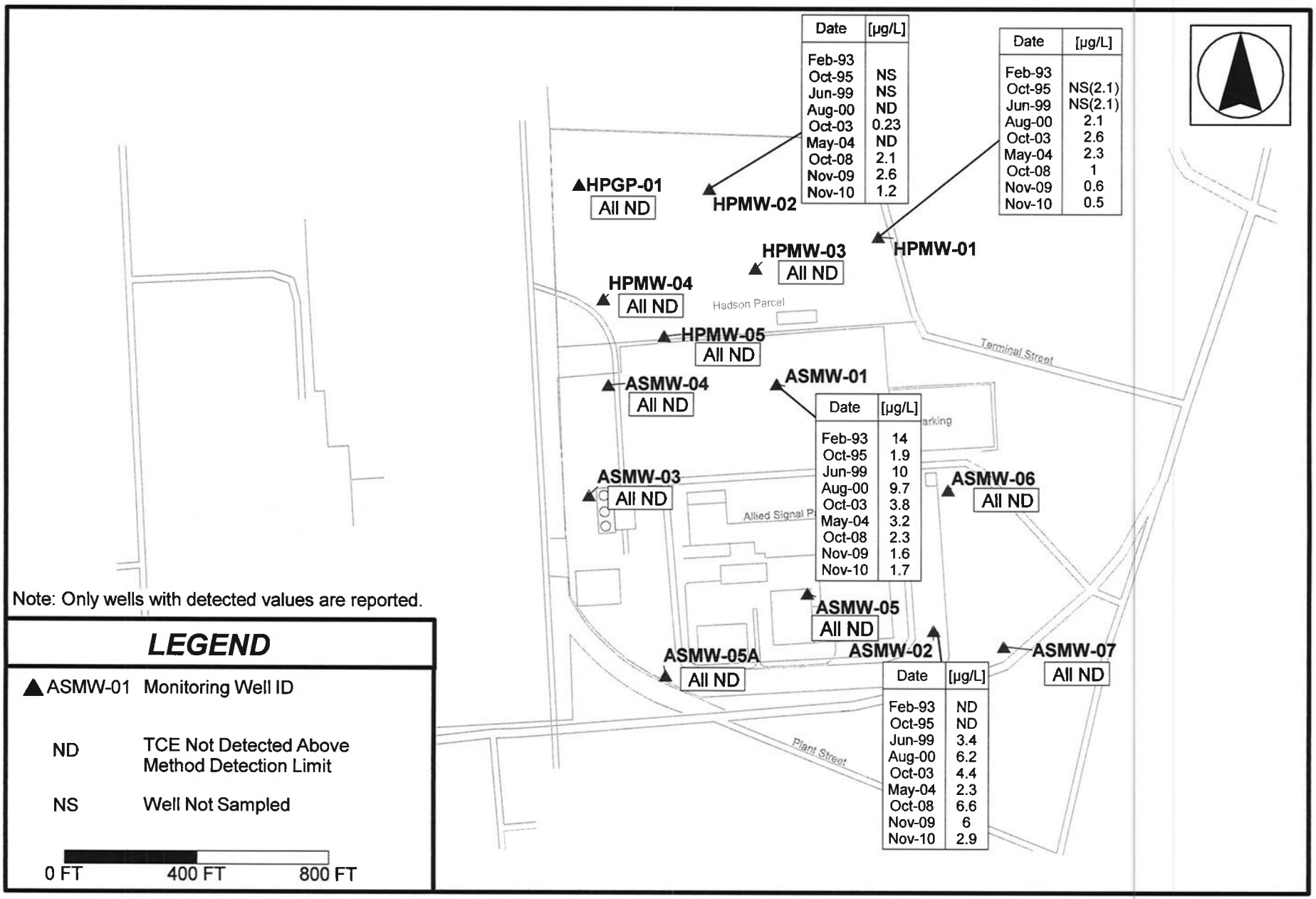
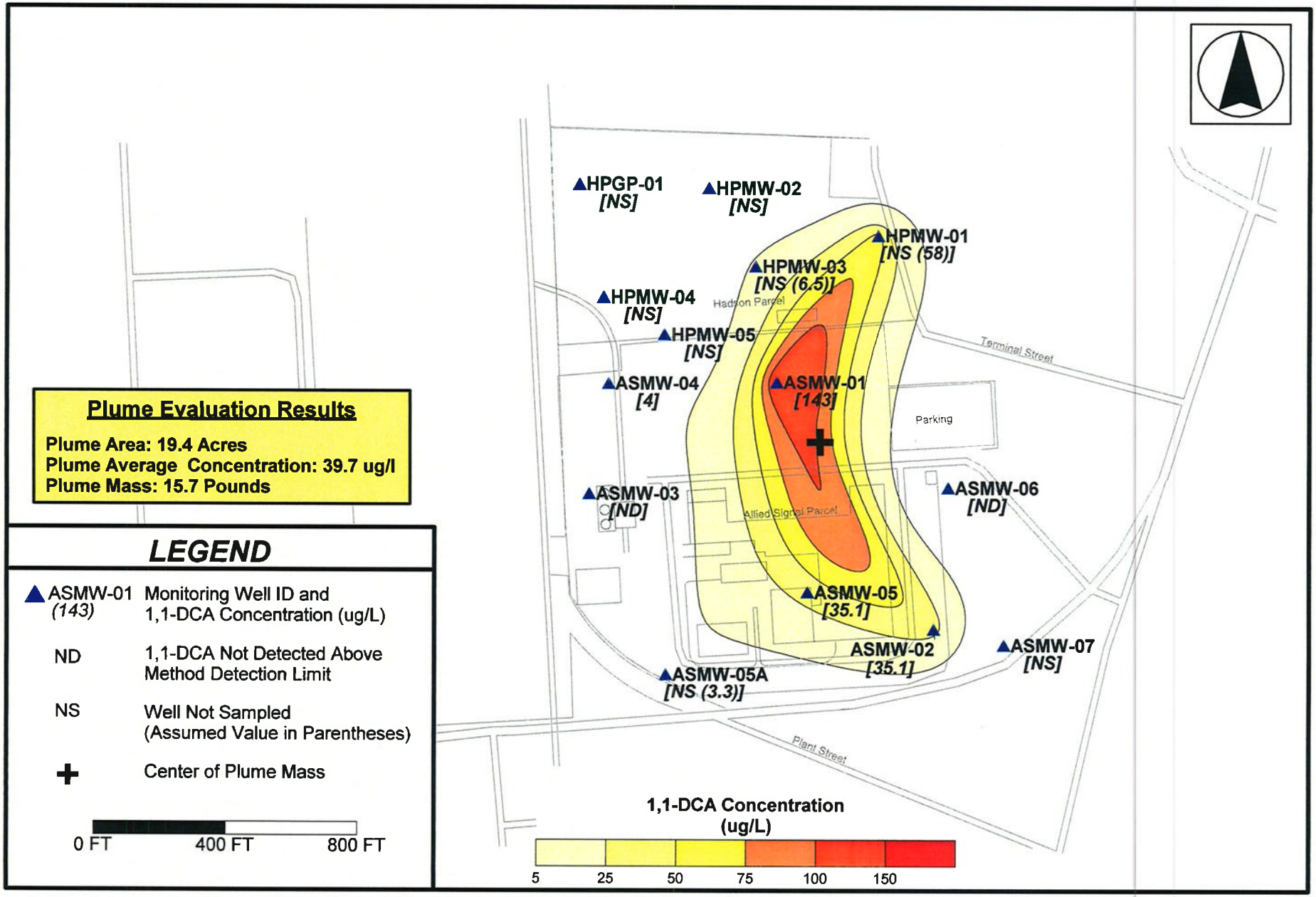


Figure 5 - Historical Data for Trichloroethene

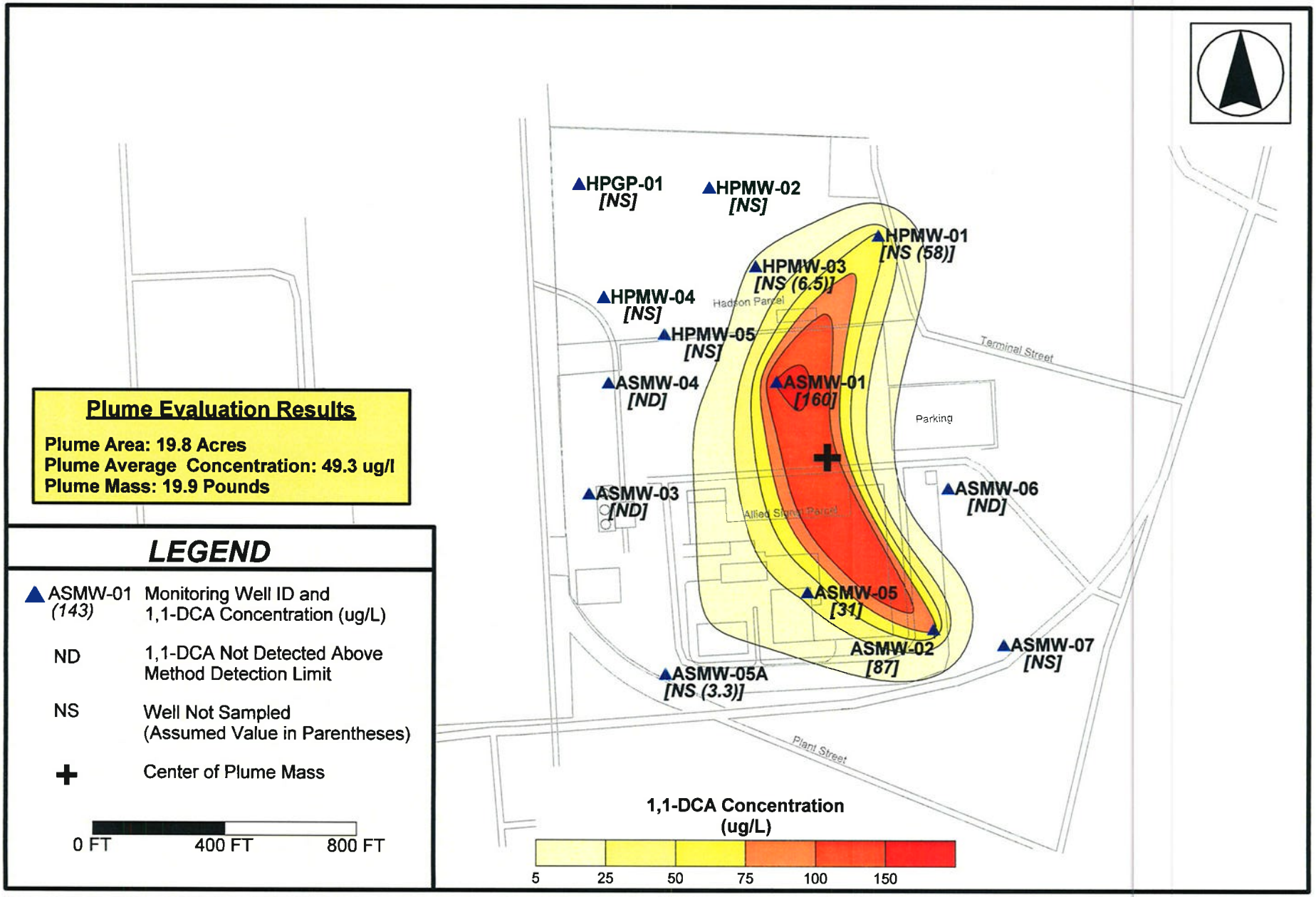
BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC

Attachment 1 – 1,1-DCA and 1,1-DCE Plume Maps



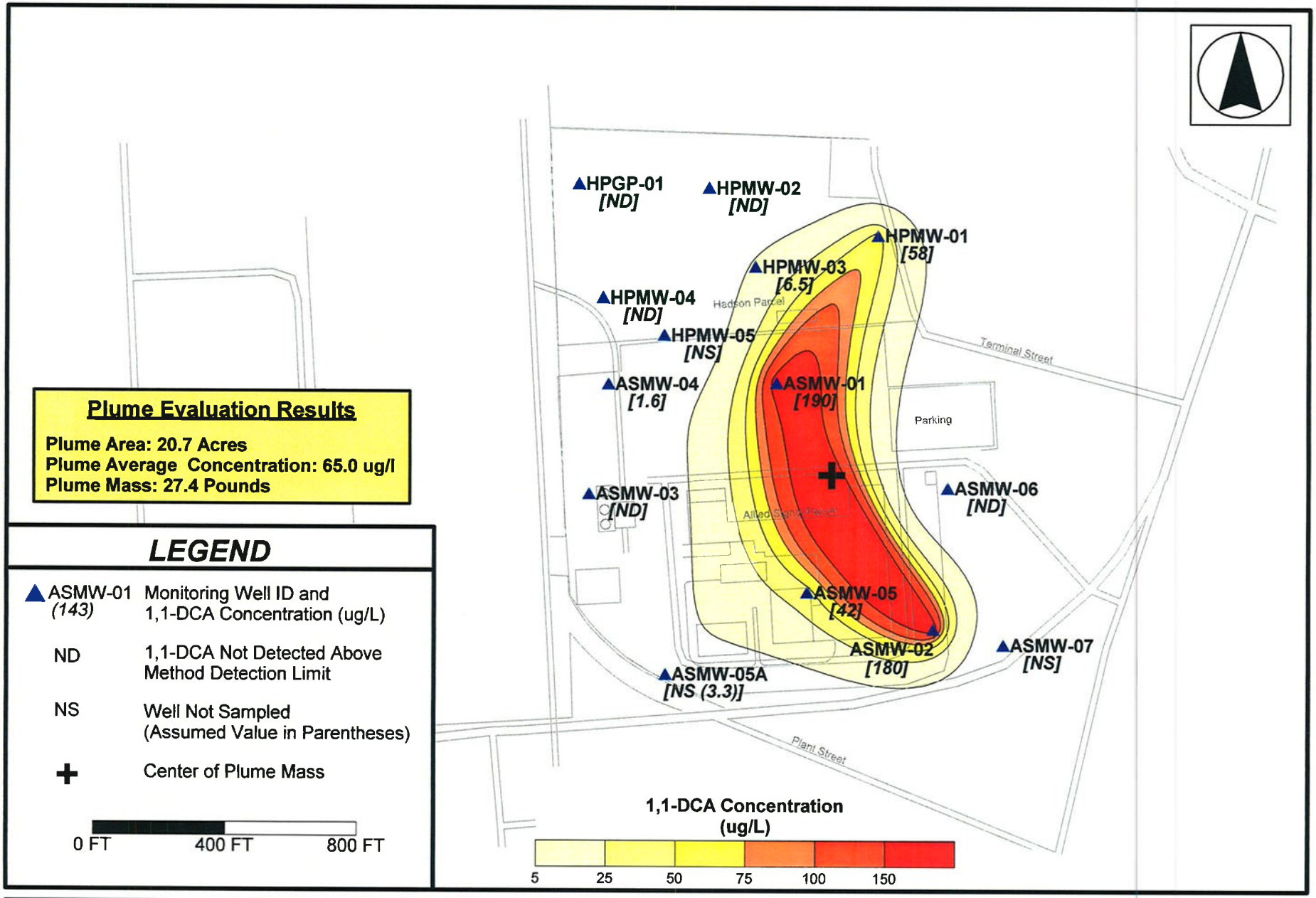
1,1-DCA Plume Stability Evaluation - October 1995

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



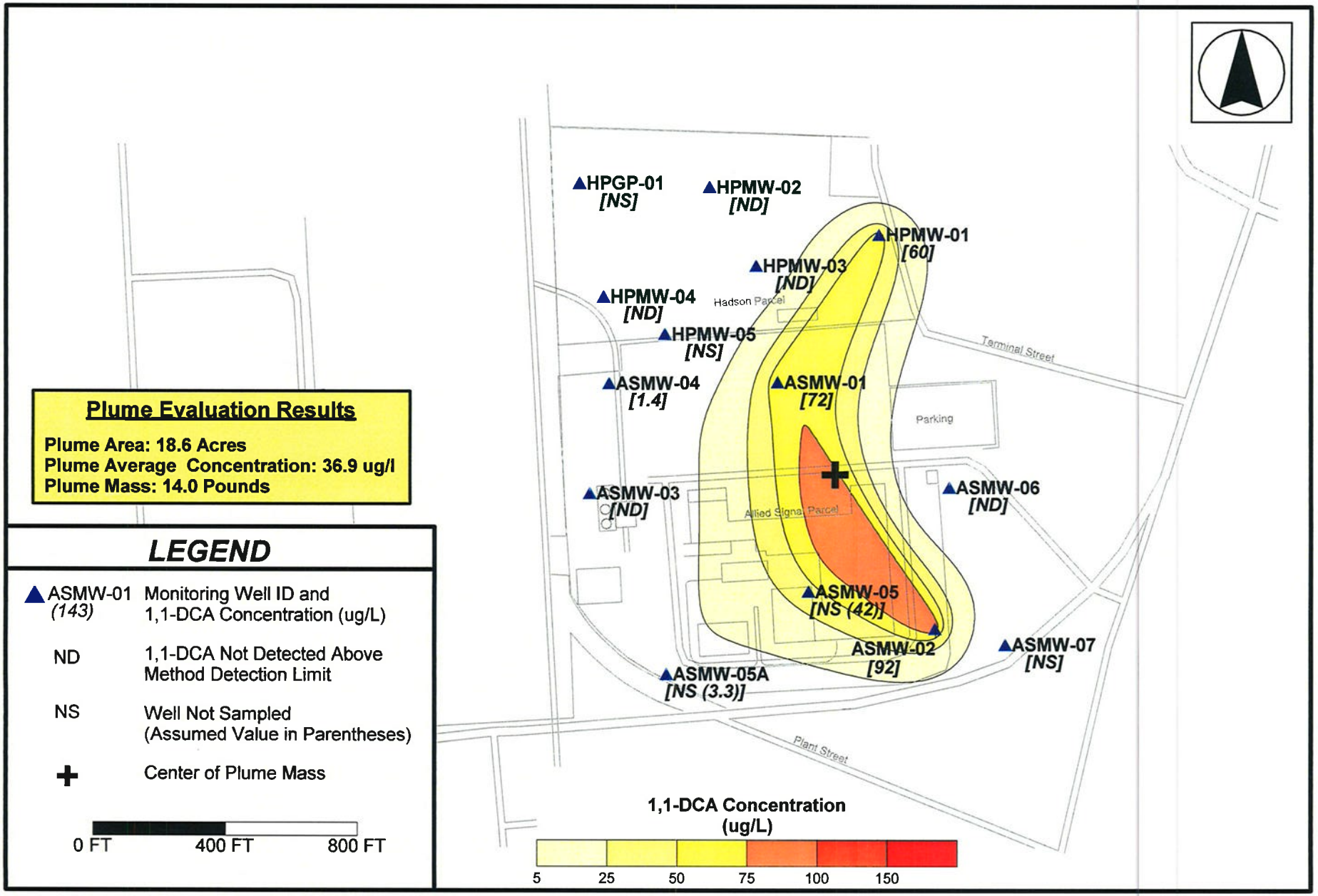
1,1-DCA Plume Stability Evaluation - June 1999

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



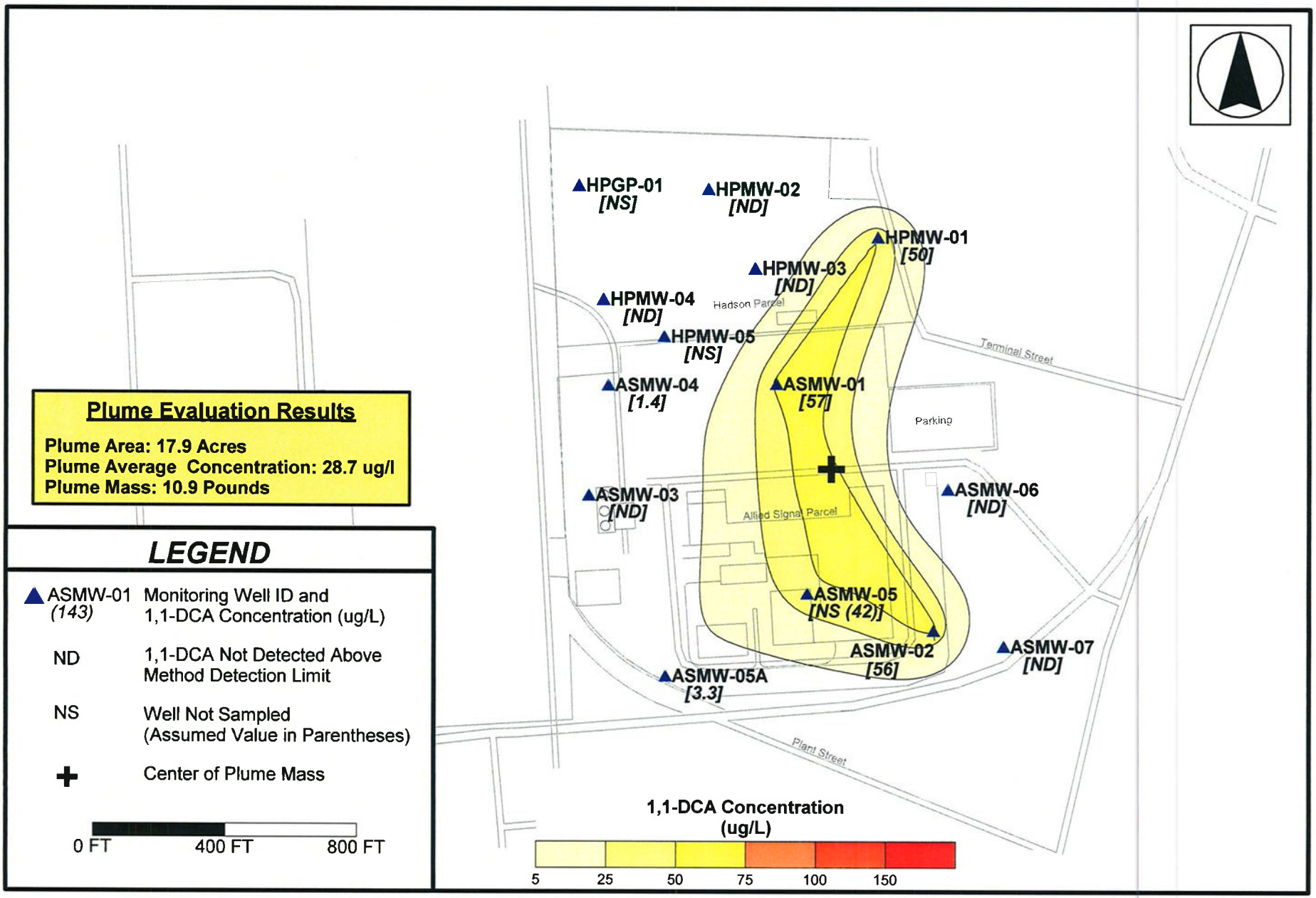
1,1-DCA Plume Stability Evaluation - August 2000

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



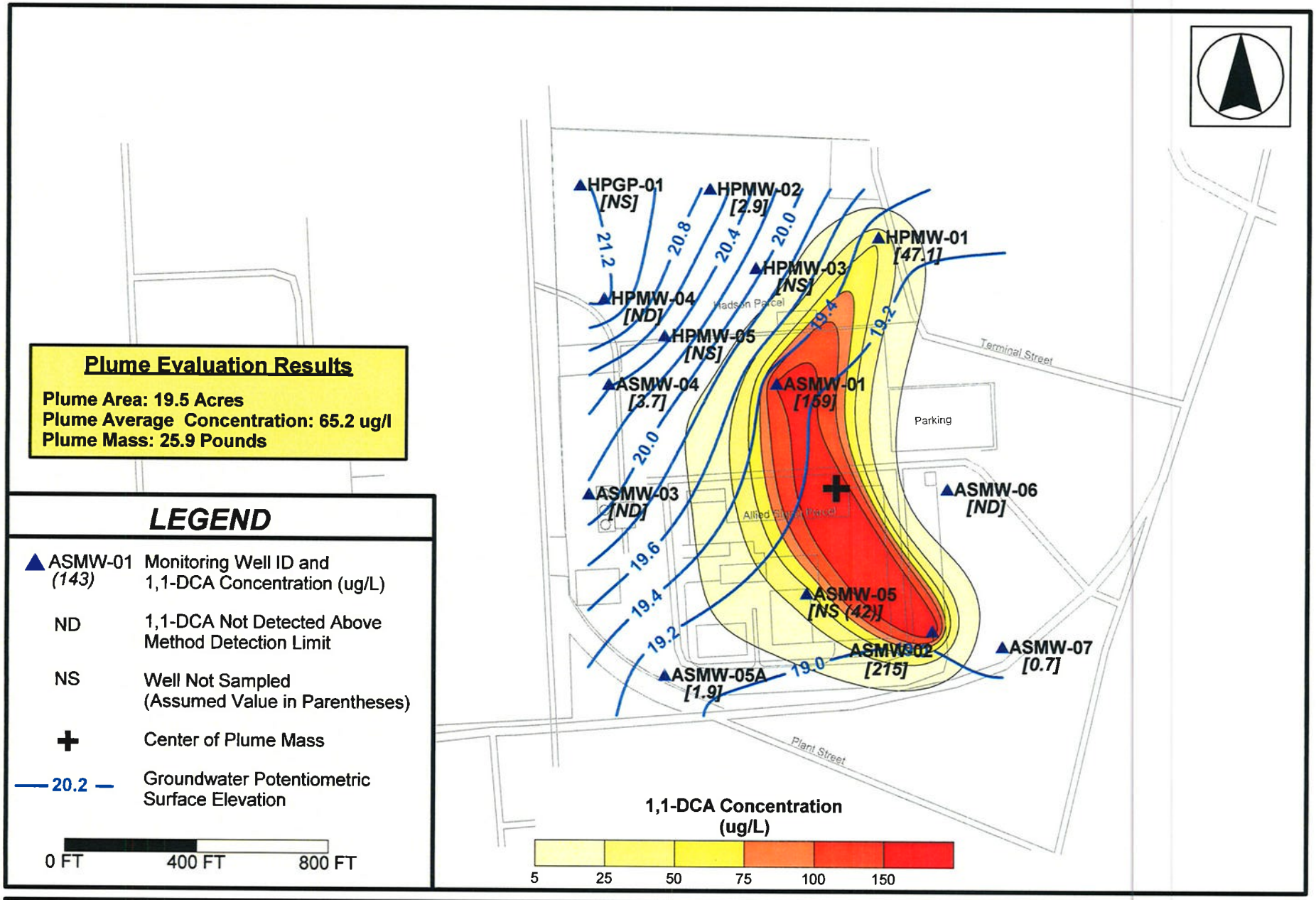
1,1-DCA Plume Stability Evaluation - October 2003

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



1,1-DCA Plume Stability Evaluation - May 2004

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



Plume Evaluation Results

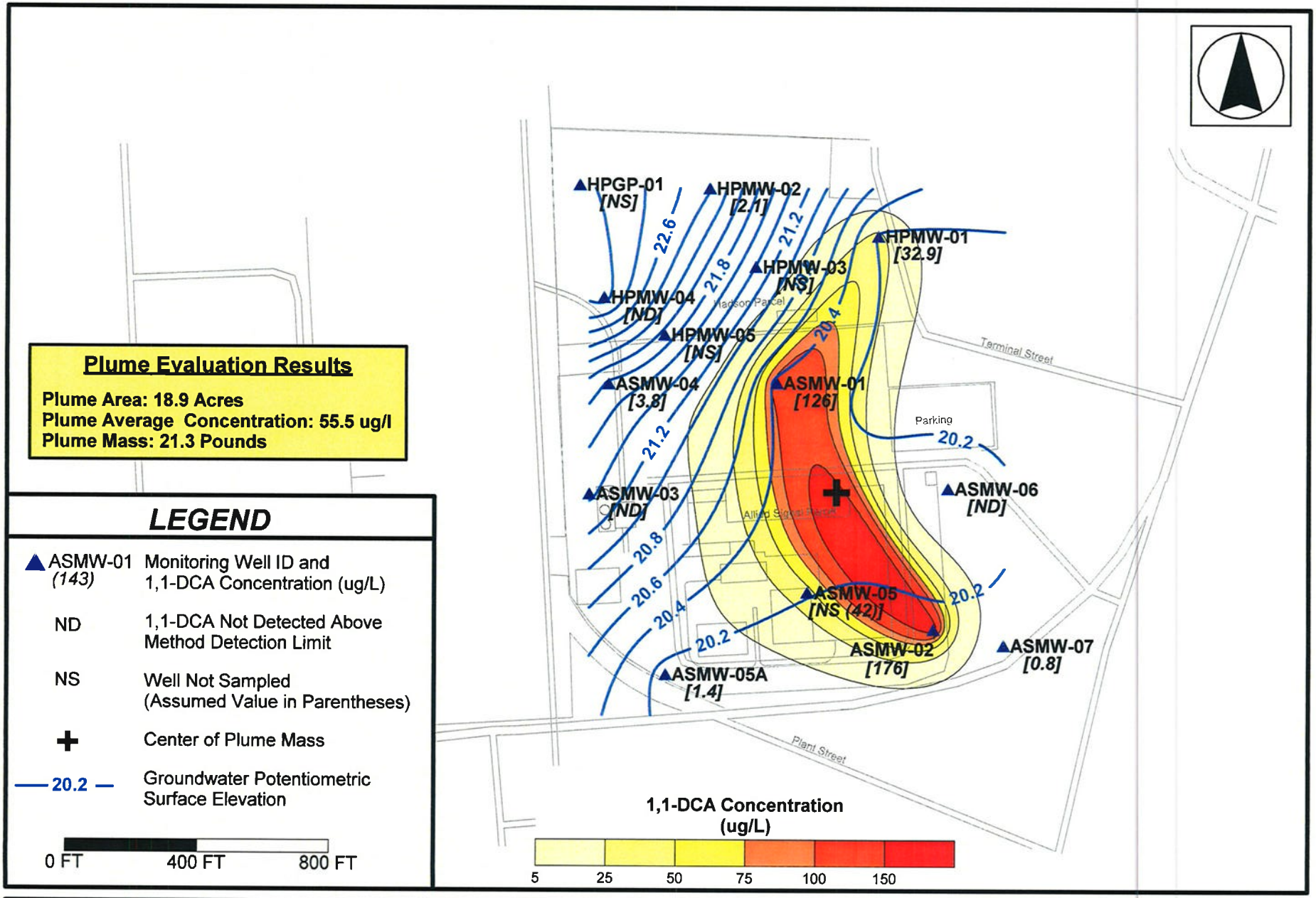
Plume Area: 19.5 Acres
Plume Average Concentration: 65.2 ug/l
Plume Mass: 25.9 Pounds

LEGEND

▲ASMW-01 (143)	Monitoring Well ID and 1,1-DCA Concentration (ug/L)
ND	1,1-DCA Not Detected Above Method Detection Limit
NS	Well Not Sampled (Assumed Value in Parentheses)
+	Center of Plume Mass
— 20.2 —	Groundwater Potentiometric Surface Elevation

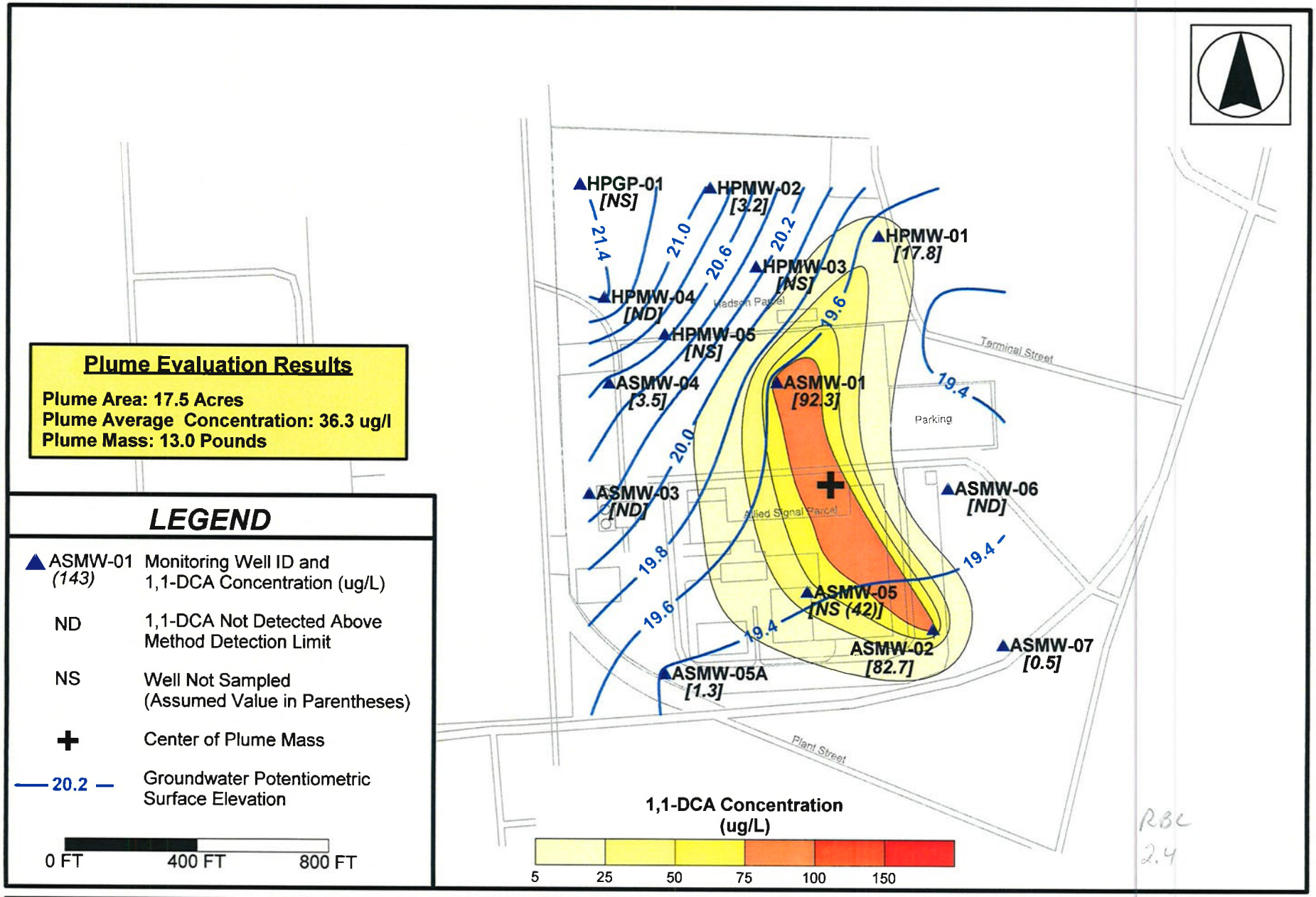
1,1-DCA Plume Stability Evaluation - October 2008

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



1,1-DCA Plume Stability Evaluation - November 2009

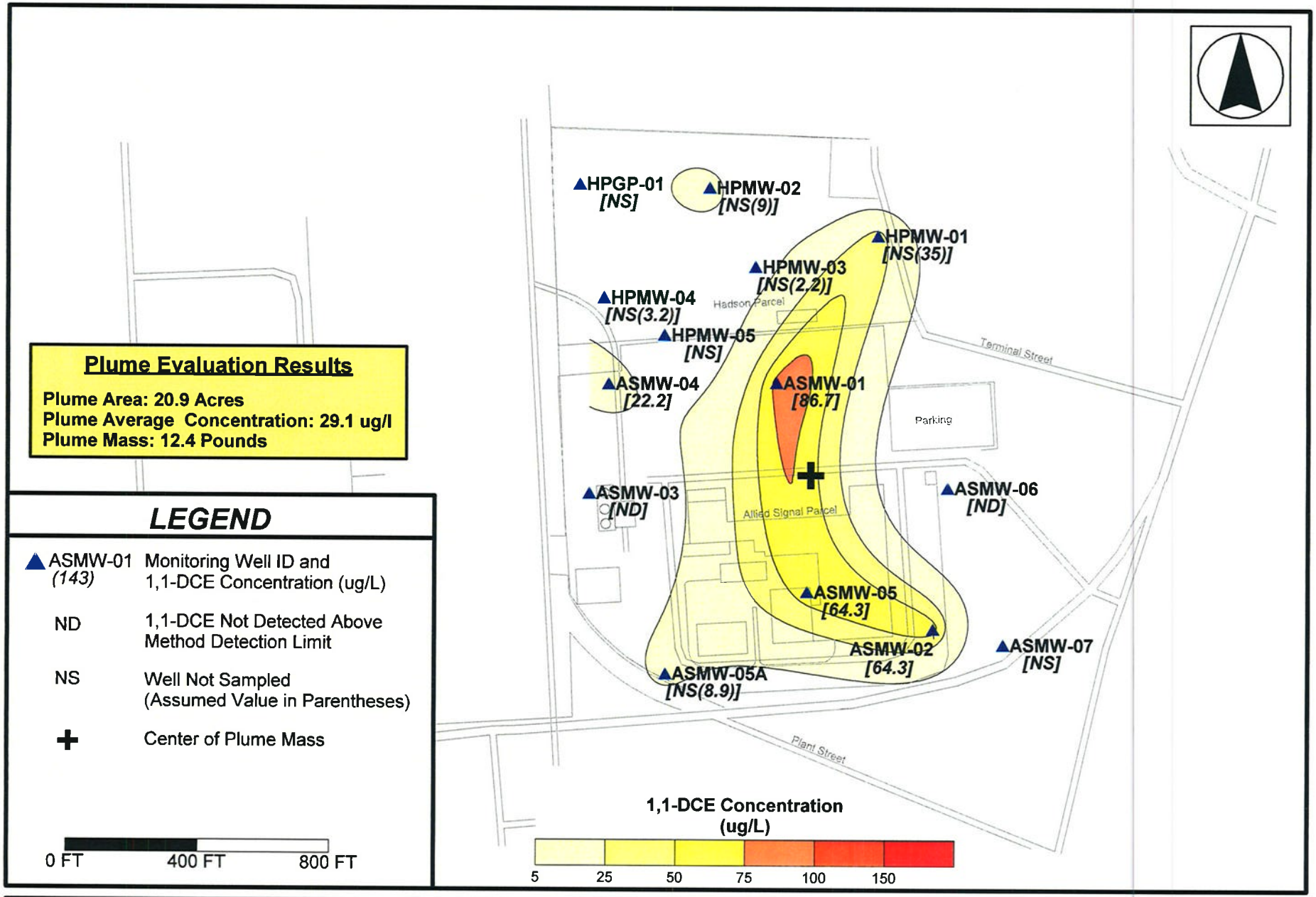
BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES INC



RBL 2.4

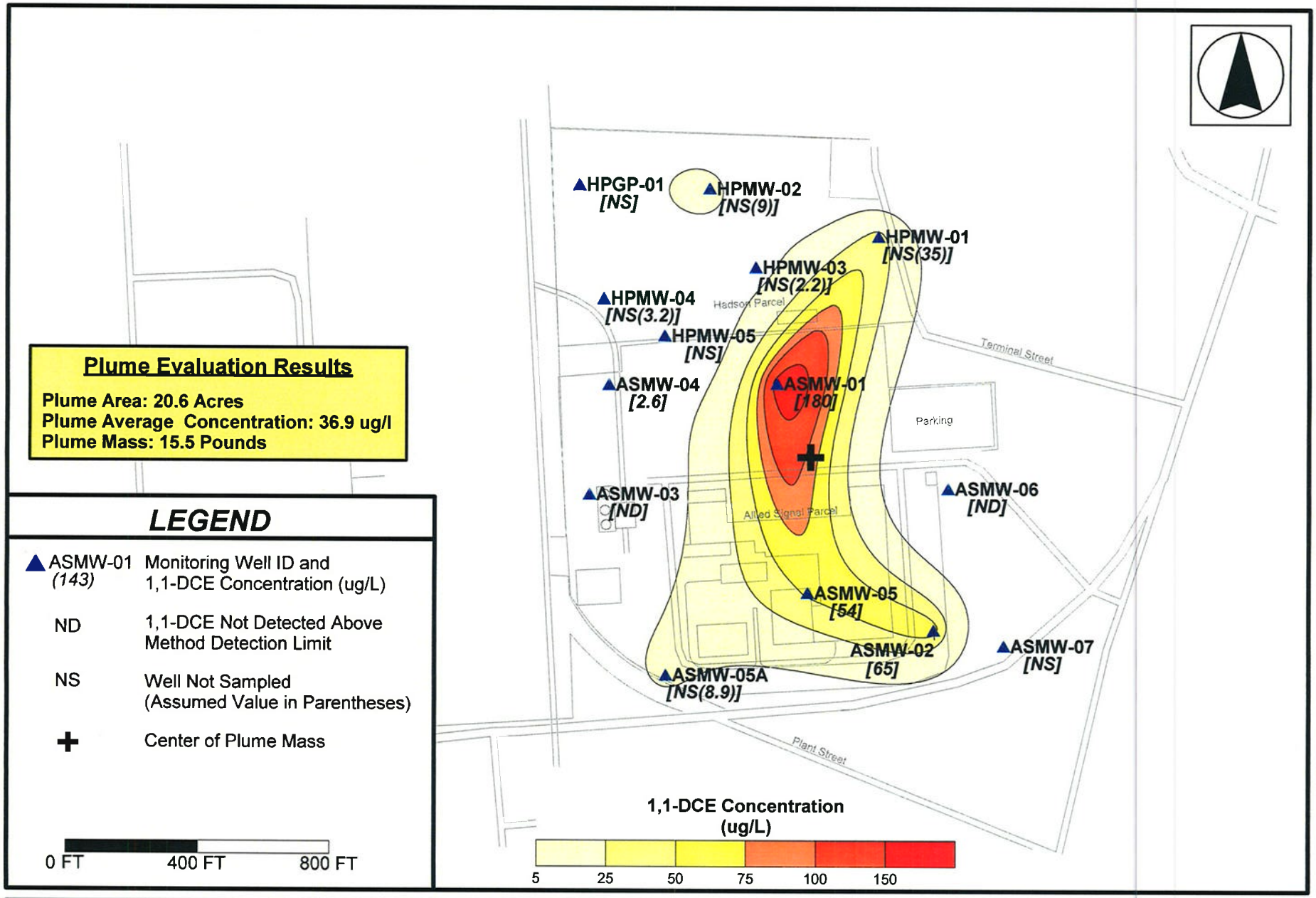
1,1-DCA Plume Stability Evaluation - November 2010

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



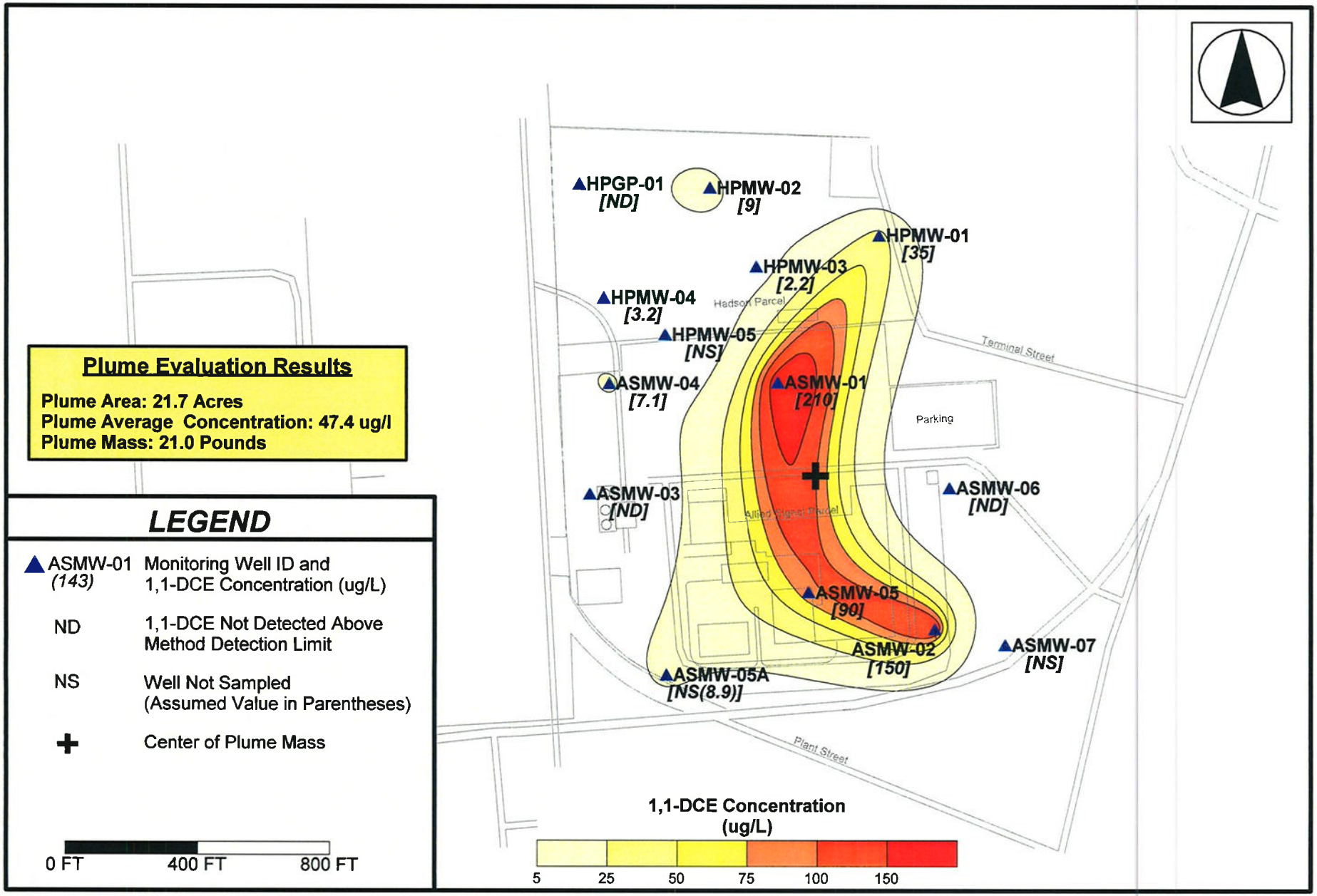
1,1-DCE Plume Stability Evaluation - October 1995

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



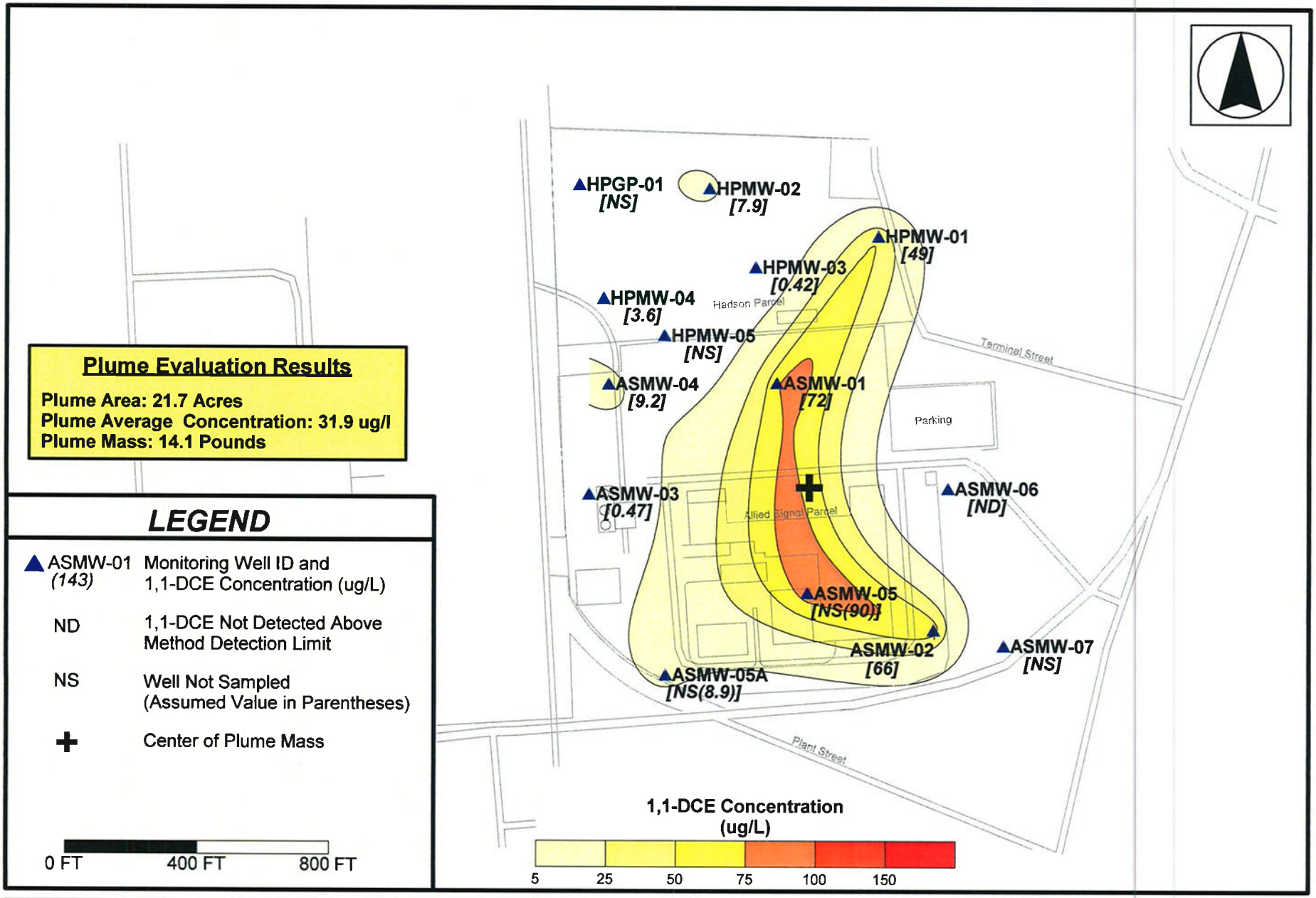
1,1-DCE Plume Stability Evaluation - June 1999

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



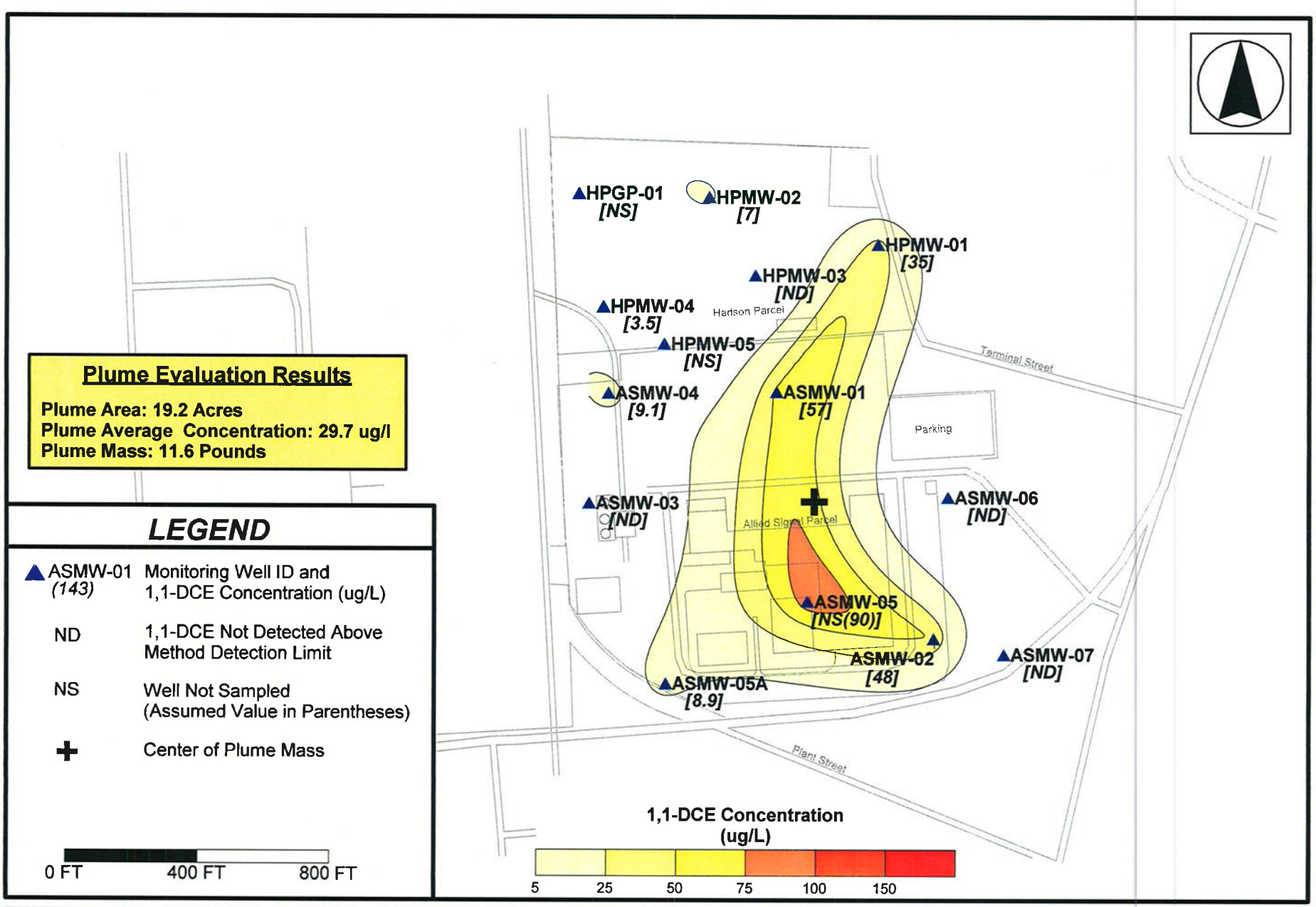
1,1-DCE Plume Stability Evaluation - August 2000

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



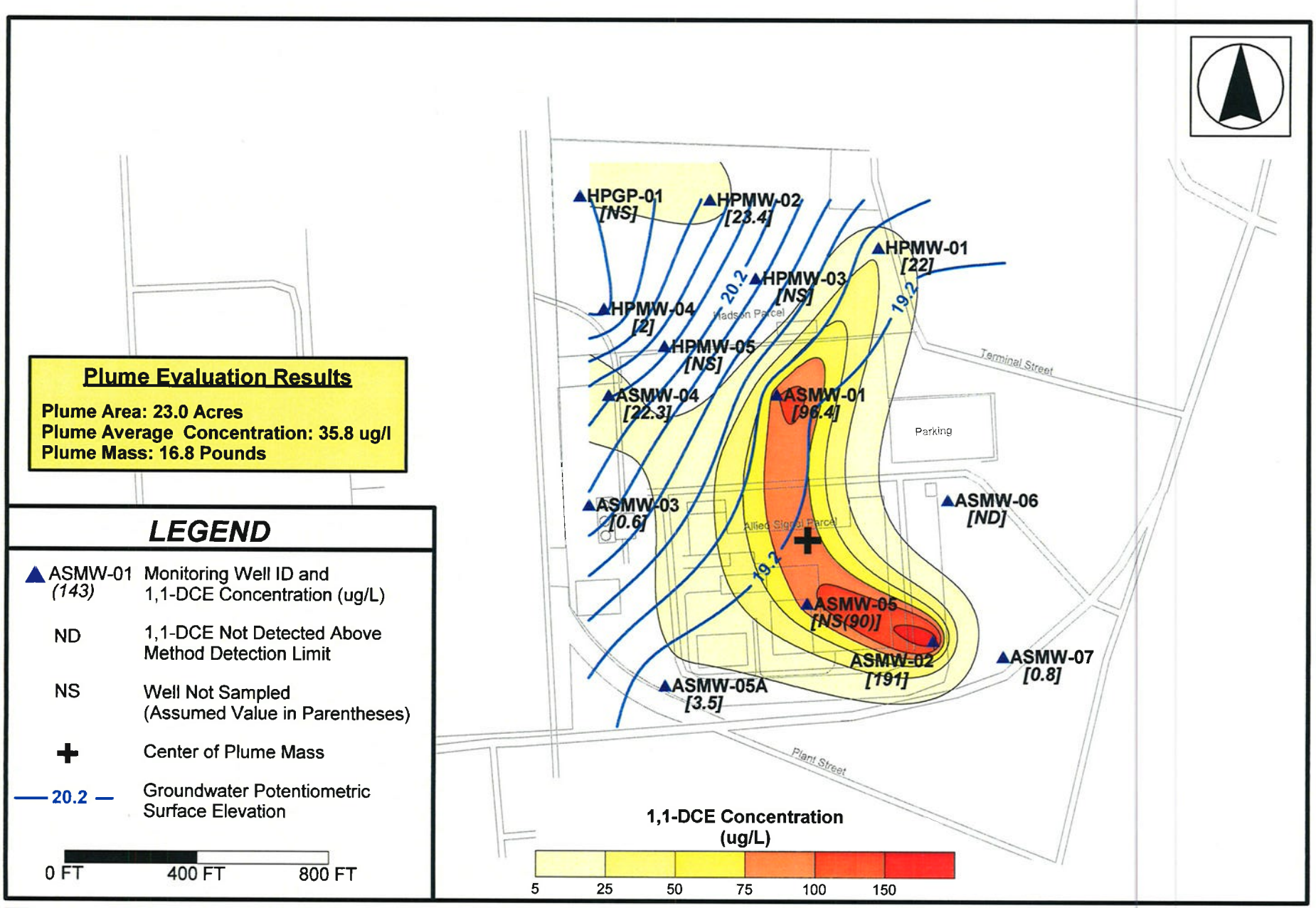
1,1-DCE Plume Stability Evaluation - October 2003

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



1,1-DCE Plume Stability Evaluation - May 2004

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



Plume Evaluation Results

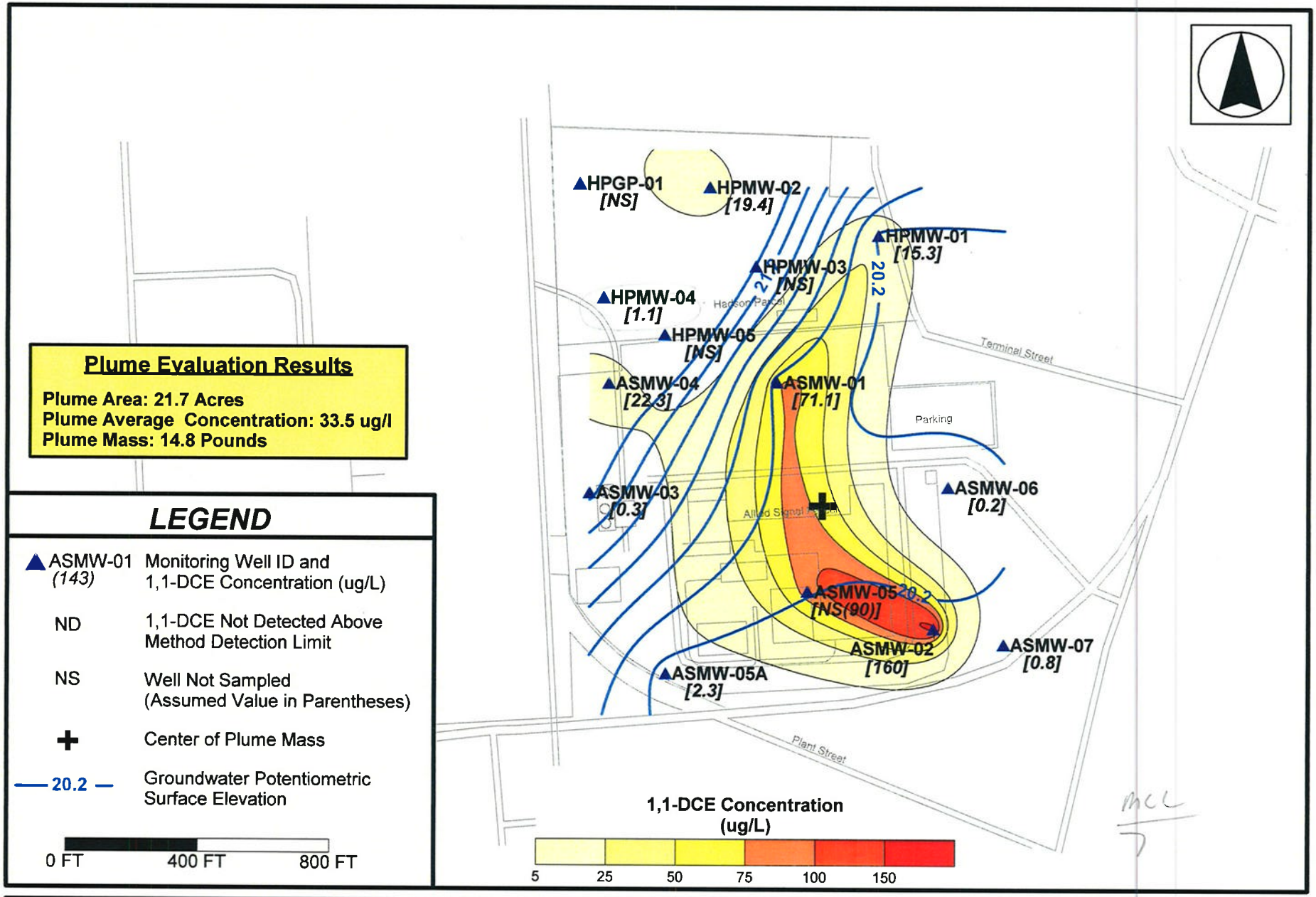
Plume Area: 23.0 Acres
Plume Average Concentration: 35.8 ug/l
Plume Mass: 16.8 Pounds

LEGEND

▲ASMW-01 *(143)*	Monitoring Well ID and 1,1-DCE Concentration (ug/L)
ND	1,1-DCE Not Detected Above Method Detection Limit
NS	Well Not Sampled (Assumed Value in Parentheses)
+	Center of Plume Mass
— 20.2 —	Groundwater Potentiometric Surface Elevation

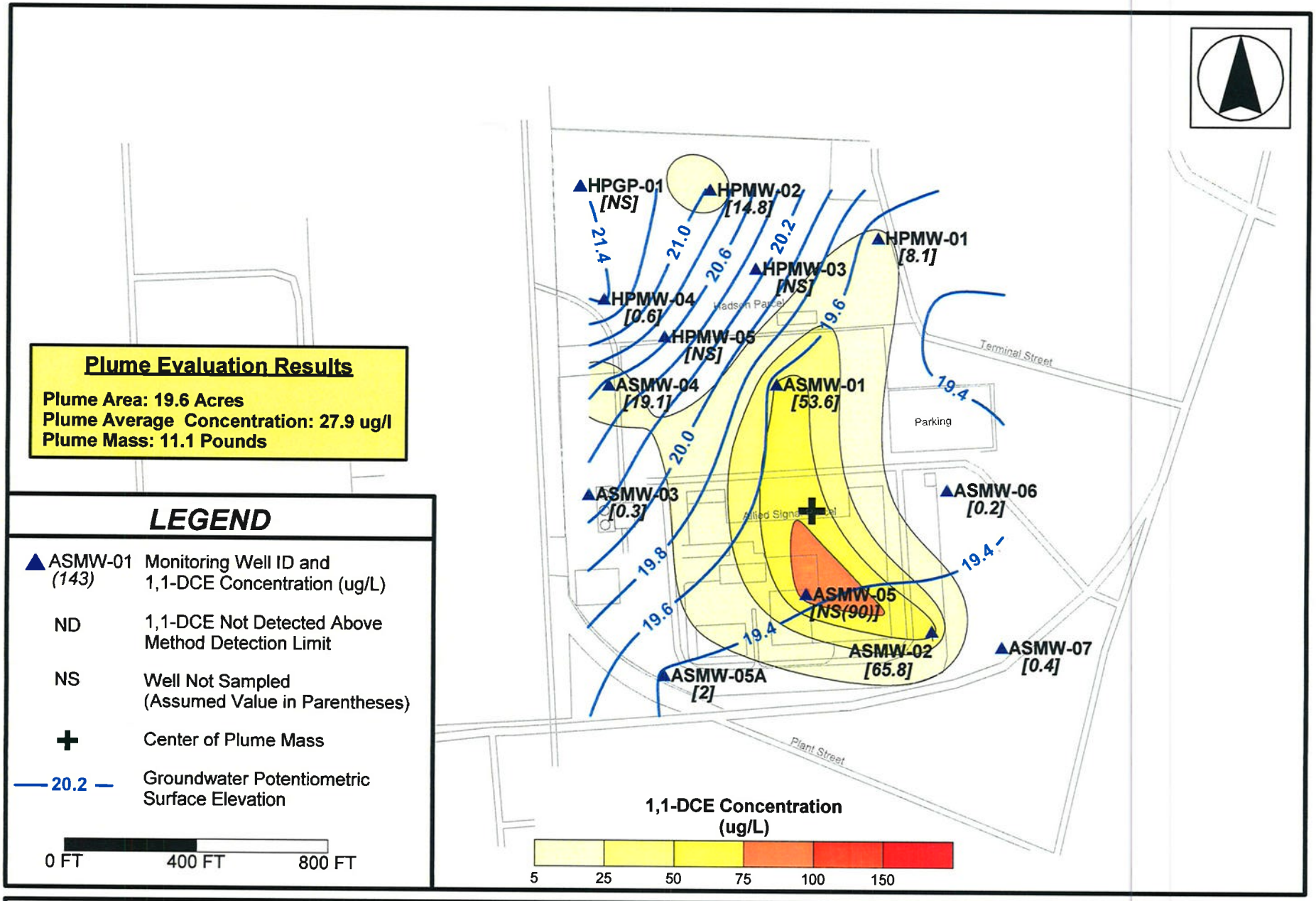
1,1-DCE Plume Stability Evaluation - October 2008

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



1,1-DCE Plume Stability Evaluation - November 2009

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



Plume Evaluation Results

Plume Area: 19.6 Acres
Plume Average Concentration: 27.9 ug/l
Plume Mass: 11.1 Pounds

LEGEND

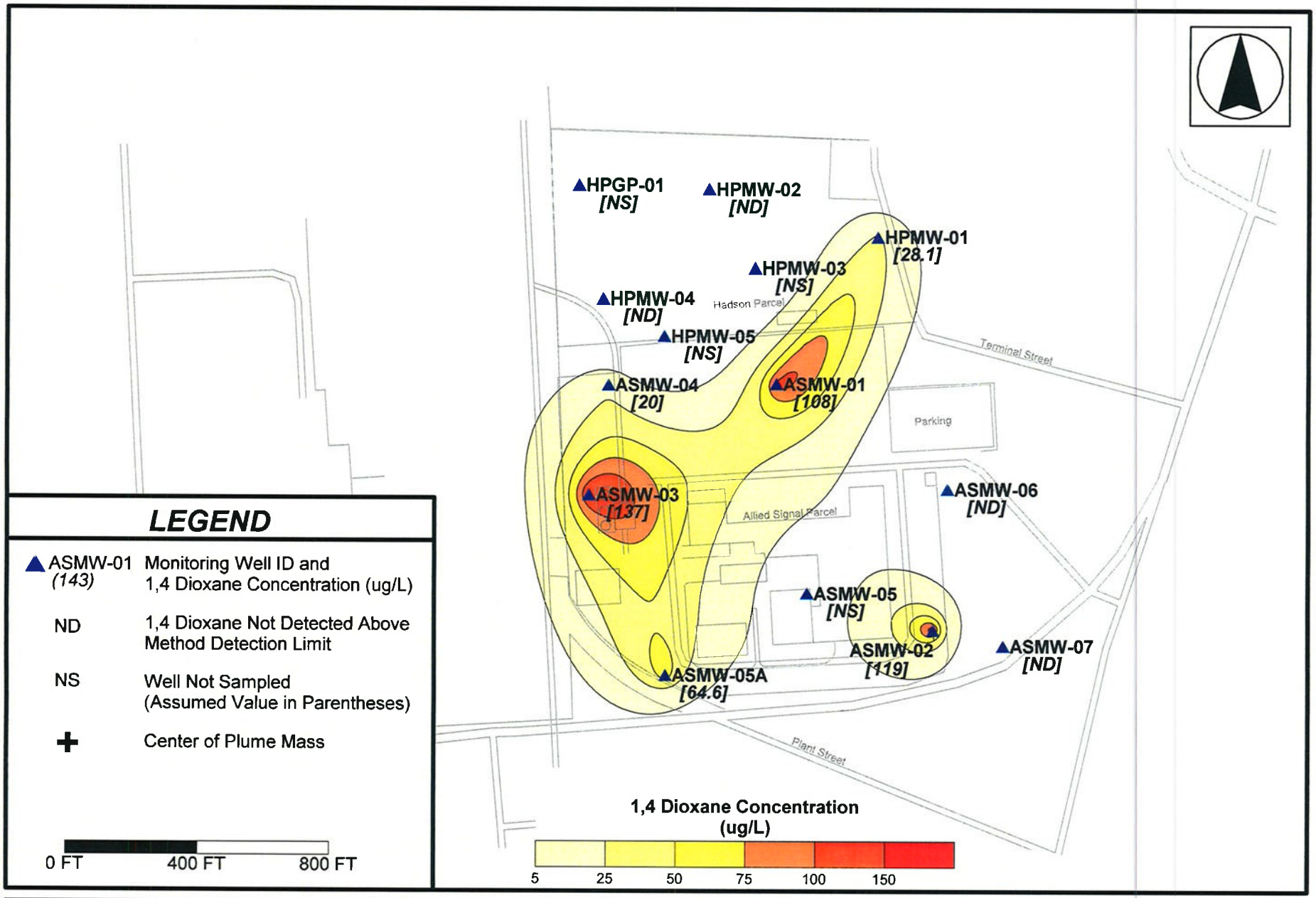
▲ASMW-01 (143)	Monitoring Well ID and 1,1-DCE Concentration (ug/L)
ND	1,1-DCE Not Detected Above Method Detection Limit
NS	Well Not Sampled (Assumed Value in Parentheses)
+	Center of Plume Mass
— 20.2 —	Groundwater Potentiometric Surface Elevation

0 FT 400 FT 800 FT

1,1-DCE Plume Stability Evaluation - November 2010

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC

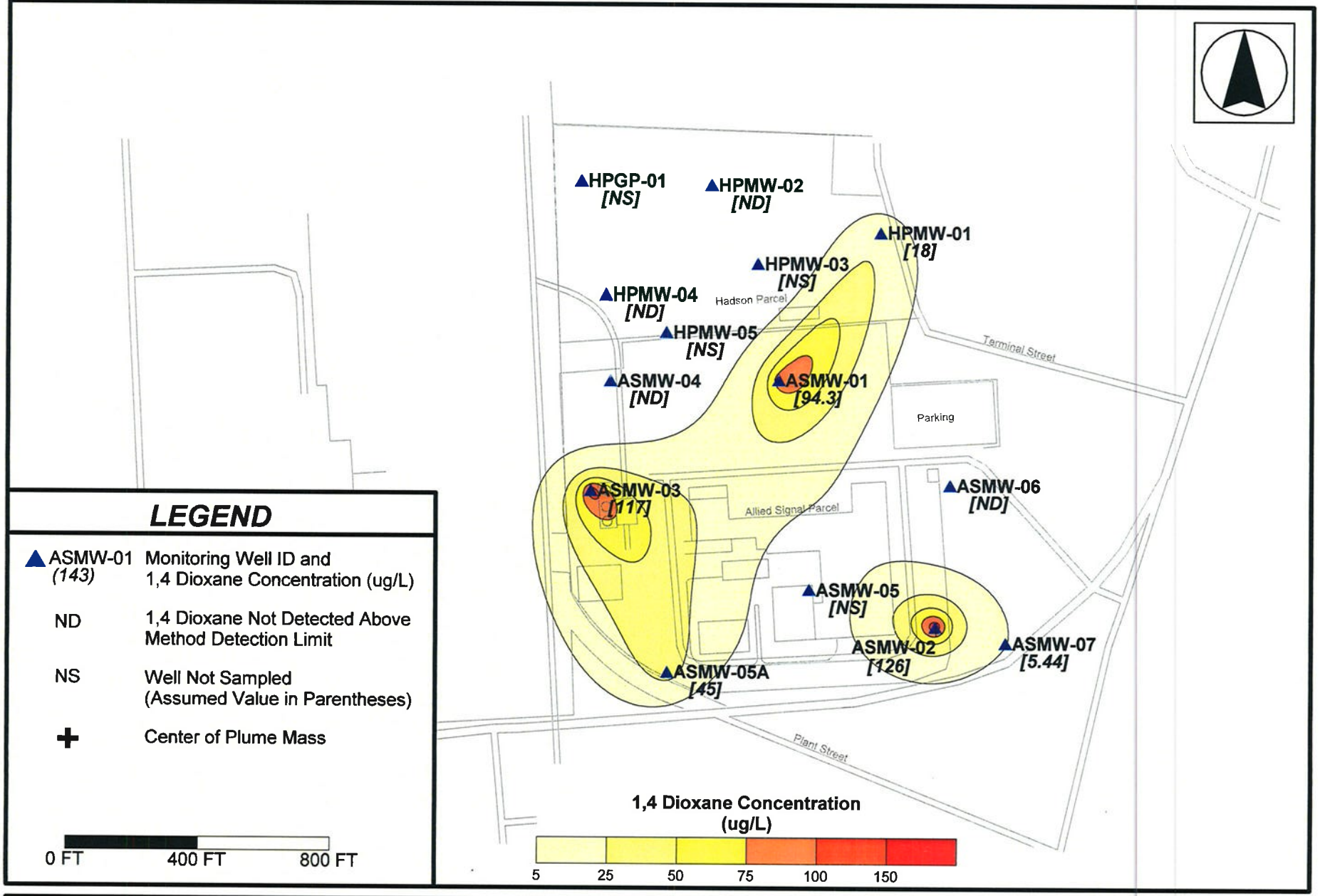
Attachment 2 – 1,4-Dioxane Plume Maps



1,4 Dioxane Plume Map - October 2008

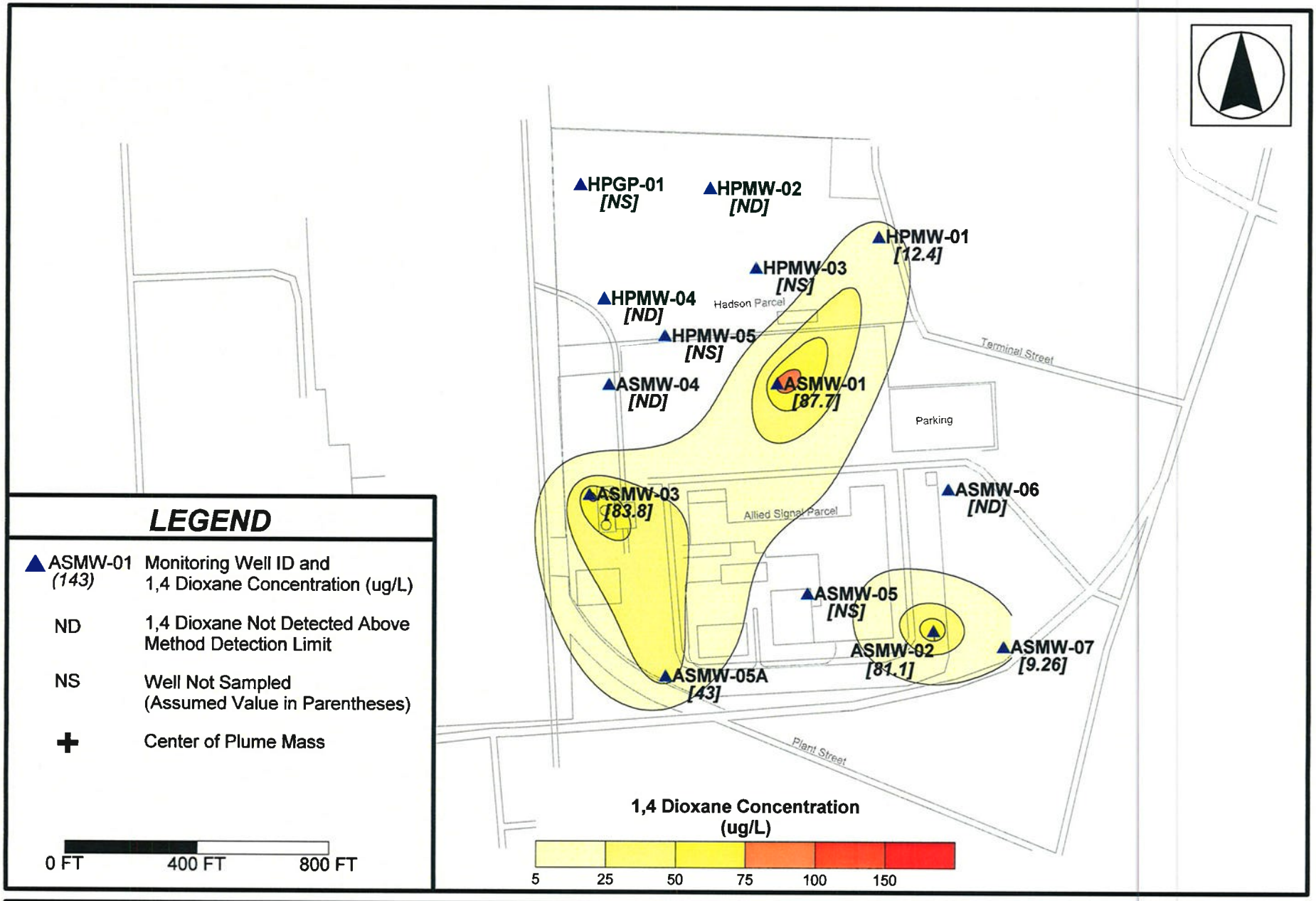
BRIDGESTONE

PREMIER ENVIRONMENTAL SERVICES, INC



1,4 Dioxane Plume Map - November 2009

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC



1,4 Dioxane Plume Map - November 2010

BRIDGESTONE PREMIER ENVIRONMENTAL SERVICES, INC